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Items of Interest

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Dental Radiography.*

By HOWARD R. RAPER, D.D.S.,

*Professor of Operative Technic and Roentgenology at Indiana Dental College,
Indianapolis.*

The Uses of the Radiograph in Dentistry.

CHAPTER VII—(Continued)

21. In Cases of Alveolar Abscess to Determine the Extent of the Destruction of Tissue—Bony and Tooth

Fig. 191. Case: Shell-crowned, lower first molar. Chronic abscess of several years' standing. The crown was removed, and the tooth treated. The flow of pus stopped. The canals were filled and the crown re-set. In about a month there was a recurrence of pus production. A radiograph (Fig. 191) was made, and shows both roots, especially the mesial, badly absorbed. The canal fillings penetrate into the area of diseased bone. Considering the clinical appearance and history of the case, and the great amount of tooth structure destroyed, apicoectomy was not indicated. I therefore advised extraction. A most peculiar fact in this case is the great destruction of tooth structure, and the comparatively slight destruction of the alveolar bone; the reverse of what is usually found. Not only is

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there little destruction of bone, but bony tissue seems actually to have filled in the space formerly occupied by the tooth roots.

Fig. 192. One of the most perfectly circumscribed alveolar abscesses I have ever seen. The abscess occurs at the apices of the roots of the upper first bicuspid.

- Notice how the two roots extend into the abscess cavity. The very light shade of bone to the distal of the bicuspid is diseased, somewhat carious, but will regain normal vitality in all probability when thorough drainage



Fig. 191



Fig. 192

Fig. 191. Both roots of the shell-crowned, lower, first molar badly absorbed, especially the mesial. Canal fillings extend beyond the ends of the roots.

Fig. 192. An almost perfectly circumscribed abscess about the roots of an upper first bicuspid. Note how the roots extend into the abscess cavity. (Radiograph by Blum, of New York City.)

of the abscess is obtained. A case like this should yield to treatment without extraction. Perhaps apicoectomy would be necessary.

Fig. 193. A very large abscess involving the upper central and lateral incisors of one side. I am unable to learn what treatment was given in this case. Basing my

judgment on the appearance of the radiograph, without any clinical knowledge of the case, I would say that the lateral should be extracted, and the opening so made into the abscess cavity enlarged to the distal to such an extent as to permit a thorough curettement of the suppurating sinus. (This would necessitate removal of the bridge from first bicuspid to cuspid.) Or, perhaps an opening sufficiently large to permit thorough curettement and drainage could be made through the external alveolar plate and the lateral conserved. At any rate, knowing that the opening into a pus sinus to drain and curette it thoroughly must vary directly according to the size of the sinus, we can see that, in this case, the opening must be quite large. Such an abscess could not be drained sufficiently well through pulp canals.

Fig. 194. Figure 194 shows how utterly futile it would be to attempt to treat, and retain in the mouth, such a tooth as is shown in the radiograph. Such a condi-

tion could not have been diagnosed by means other than the use of the X-rays. The small, dark streak through the tooth is a wire. Note the great destruction of the tooth root and the carious condition of the surrounding bone.

Fig. 195.

Case: Sinus opening near the apex of an upper central incisor. The tooth did not yield to treatment. It was treated on the assumption that there was considerable destruction of bone, and powerful stimulating corrosives, like



Fig. 193



Fig. 194



Fig. 195

Fig. 193. Very large abscess involving the lateral and central, and extending almost to the apex of the first bicuspid. (Radiograph by Peabody, of South Orange, N. J.)

Fig. 194. Absorption of the root and surrounding bony tissue. A wire is seen passing into the canal. (Radiograph by Blum, of New York City.)

Fig. 195. A very small abscess cavity at the apex of the central with the wire in it.

pheno sulphonic acid, were forced beyond the apex. That such treatment was improper is demonstrated by the radiograph (Fig. 195), which shows that there is very little bone destruction. Accordingly the more radical line of treatment was dropped, the sinus injected with bismuth subnitrate paste, a mild antiseptic sealed in the canal, and the tooth allowed to rest unmolested for ten days, at the end of which time all pathological symptoms had disappeared.

22. In Cases of Alveolar Abscess to Learn How Many Teeth are Involved.

Fig. 196.

I recall having treated an abscessed central incisor for a month without effecting a cure, or even much improvement. The apical foramen was well opened, and antiseptic and stimulant washes could easily be forced through the tooth and out through the fistulous opening on the gum, assuring me that I had good drainage. The lateral at the side of the central did not respond to the cold test, but neither did any other tooth in the patient's mouth. Despite the fact that it was a sound tooth, I opened into the lateral, removed the pulp, which, while devitalized, was not badly

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putrescent, enlarged the apical foramen, and found that washes forced into the lateral came out both the fistula and central. While the case is not the same, the conditions which I then combatted in the dark (I did not use the X-Rays in my practice at this time), are shown in Fig. 196. An abscess, involving both central and lateral, is shown by the light area about and above their apices. In this case the canal of the central is only partially filled, and the lateral canal not filled at all.



Fig. 196

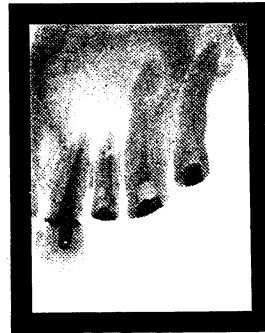


Fig. 197

Fig. 196. Abscess involving the central and lateral incisors. The canal of the central is partially filled. (Radiograph by Lewis, of Chicago.)
 Fig. 197. A large abscess involving the central, lateral and cuspid.

Fig. 197. An abscess pointing in the palate. A radiograph (Fig. 197) was made to determine which tooth was responsible. The central, lateral, cuspid and first bicuspid were suspected. The radiograph shows that all of these teeth except the first bicuspid—*i.e.*, the central, lateral and cuspid—are involved. The abscess was treated through all three teeth, but did not yield to this treatment. It was deemed necessary to curette the sinus. An opening through which the sinus could be curetted was made by extracting the lateral root. Perhaps there are those who will condemn my surgery, saying the tooth should have been conserved and the opening made into the sinus through the external alveolar plate. My reason for extracting the tooth root is that I was quite uncertain as to the exact labial palatal location of the sinus—recollect the abscess pointed on the plate.

23. In Cases of Abscess of Multirooted Teeth, to Learn at the Apex of Which Root the Abscess Exists,

Fig. 198. This radiograph shows an abscess at the apex of the mesial root of a shell-crowned, lower first molar. The canals of the tooth are not filled. With-

out this picture to guide us a great deal of time and energy might be wasted in opening and enlarging the apical foramen of the distal canal, which is worse than unnecessary. Knowing that the abscess is at the apex of the mesial root, we should try to obtain drainage by opening one or both of its apical foramina. This is not always possible, despite loud and angry protestations to the contrary. If, after earnest, conscientious, and prolonged effort the mesial foramina cannot be enlarged, obtain drainage by opening through the buccal alveolar plate, directing the bur towards the mesial root.



Fig. 198



Fig. 199

Fig. 198. Abscess at the apex of the mesial root of the shell-crowned, lower, first molar. The canals of the tooth are not filled. (Radiograph by Blum, of New York City.)
 Fig. 199. Large abscess involving both roots of the lower first molar and probably both roots of the second molar. The distal canal of the first molar is partially filled. (Radiograph by Ream, of Chicago.)

A large abscess involving both roots of the lower first molar and probably both roots of the second molar. Without a history of the case to guide me, I should say, judging from the appearance of the radiograph, that both the first and second molar need treatment. The apical foramina of the first molar should be opened, and good drainage through the alveolar plate established also. Enlargement of the apical foramina of the second molar would probably be unnecessary.

24. In Cases of Abscess of Crowned Teeth to Learn if the Canals are Properly Filled.

It is a common occurrence in practice to have a patient present with a pus sinus, discharging in the region of the apex of a tooth carrying a crown. If the canals of the tooth are properly filled, we should treat the sinus through the external alveolar plate; if the canals are not properly filled, then the crown should be removed and the case treated through the tooth—perhaps through the external alveolar plate also, depending on the extent of the destruction of tissue. Whether or not the crown should be removed is determined by the use of the radiograph.

See Fig. 188. This radiograph shows that it is quite unnecessary to

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remove the post-collar crown (an abutment of a bridge) from the abscessed lateral, for the canal is well filled. As formerly recorded, the treatment of this case was chiefly surgical, through the external alveolar plate, and was effective.



Fig. 200

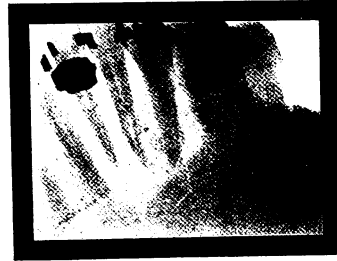


Fig. 201

Fig. 200. Abscess involving the upper central and lateral incisors. There was but one fistulous opening on the labial. Since the canals of central and lateral are both properly filled the treatment should consist simply of curettement of the affected area, which, of course, does not necessitate the removal of the post-porcelain crowns from the teeth. (Radiograph by Ream, of Chicago.)

Fig. 201. Dr. Rhein says of Fig. 201. "This is a typical case of chronic alveolar abscess, which for years had been erroneously treated for pyorrhea."



Fig. 202



Fig. 202a

Fig. 202, a and b. Alveolar abscess wrongly diagnosed as pyorrhea. The second picture shows the tooth after removal of dead pulp and introduction of wires. (Radiograph by Rhein.)

Fig. 200.

In the third edition of his *Modern Dental Materia Medica, Pharmacology and Therapeutics*, Dr. Buckley prints Fig. 200, and the following description: Fig. 200 "shows the involvement of the upper central and lateral incisors in an abscess. Both teeth carried perfectly adjusted porcelain crowns. The skiagraph not only shows the involvement of both teeth,

but also that the roots are properly filled. The treatment here is purely surgical, and means the curettement of the affected area." Had the radiograph not been used the operator would, in all probability, have made the laborious and foolish mistake of removing the crowns on the assumption that the canals were not properly filled.

25. As an Aid in Differential Diagnosis Between Chronic Alveolar Abscess and Pyorrhea Alveolaris.

When a chronic alveolar abscess discharges about the neck of a tooth the case so closely simulates calcic pyorrhea alveolaris that, without using the radiograph or opening into the affected tooth, the operator cannot make a definite diagnosis.



Fig. 203

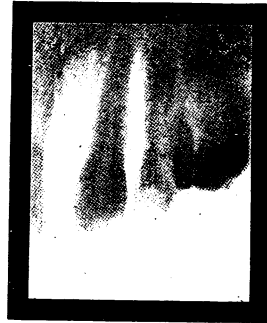


Fig. 204

Fig. 203. Absorption of the bone around the molar due to pyorrhea alveolaris. The tooth has no bony attachment at all. (Radiograph by Ream, of Chicago.)
 Fig. 204. Absorption of the bony tissue due to pyorrhea alveolaris. The distortion (elongation) enables us to observe clearly little speculae of diseased bone. The central has no bony attachment, except at the extreme apex.

This is a case from the practice of Dr. M. L. Rhein, of New York City. Dr. Rhein says: "This is a typical example of a chronic alveolar abscess, which for years had been erroneously treated for pyorrhea."

Fig. 201.

Figures 202 A and B represent another case from the practice of Dr. Rhein, which had been wrongly diagnosed as pyorrhea. The lateral incisor was supposed to be affected by pyorrhea, but after making a radiograph, Figure 202A, it was seen that the real trouble was an apical abscess, the infection arising from the death of the pulp. Figure 202B is the same tooth after a pulp had been removed, a wire inserted and a radiograph taken to determine whether or not the canal had been cleaned to the end.

Fig. 202, A and B.

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26. To Observe Destruction of Tissue Due to Pyorrhea Alveolaris.

Other factors being equal, our chances of curing pyorrhea alveolaris vary inversely according to the amount of destruction of alveolar process surrounding the affected teeth. Figure 203 demonstrates the futility of treating and attempting to conserve the molar tooth. All of the bone immediately surrounding the tooth is destroyed.

A central incisor affected with pyorrhea. The tooth has no bony attachment except at its extreme apex. Extraction is indicated. The distortion—the elongation—in this picture enables us to observe the diseased bone to the



Fig. 205

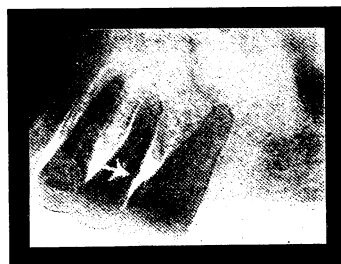


Fig. 206

Fig. 205. The distal root of the first molar has practically no bony attachment and is badly roughened. It was extracted. The arrow points to an absorbed notch in the distal root.
206. The arrow points to bit of calculus on the distal of a second bicuspid. The light area above the calculus denoting the destruction of bone and represents a pyorrhea pocket.

left of the central unusually well. In the negative now before me I can see clearly the soft tissue between the centrals.* Looking to the mesial and distal, I can distinguish also the enamel of the central. The lingual enamel in the incisal region has been worn away; hence the lighter shadow of the tooth in this region.

A lower first molar affected with pyorrhea. The distal root appears roughened, due to a necrotic condition of its surface and the presence of calculus on it. It has no attachment to bone except at its extreme apex. The alveolar process to the mesial of the mesial root is comparatively healthy. The tissues to the distal of the mesial root are not as healthy as those to the mesial, but not so badly diseased that they cannot regain a healthy vitality. The treatment of this case should be begun with extraction of the distal root. This was done, and the mesial root successfully conserved.

*The half is not rich enough in detail to show the soft tissues.

Fig. 206. A pyorrhea pocket on the distal of an upper second bicuspid. There is but slight destruction of bone. The most remarkable thing about this picture is that it shows a bit of calculus on the distal of the second bicuspid.

27. In Cases of Pericemental Abscess.

Pericemental abscesses have been described by numerous writers, one of the best papers on the subject being that by Dr. E. C. Kirk, published in the *Dental Cosmos* for November, 1900. There are various views as to the etiology of this condition, but the main point of interest lies in the fact that pericemental abscess occurs on the root of a tooth in which the



Fig. 207



Fig. 208

Fig. 207. Pericemental abscess at apex of upper cuspid. The crowned first bicuspid was suspected, but the radiograph shows both canals perfectly filled, and an abscess at apex of the cuspid, which was sound and alive.

Fig. 208. The light area to which the arrow points is a pericemental abscess.

pulp is still alive, a fact which renders a true diagnosis sometimes quite complex. For example, a patient might present with a well defined fistula appearing between the roots of two teeth, one of which may be perfectly sound, whereas the other might be just as certainly pulpless. It would be quite reasonable for the operator to conclude that an abscess originated from infection coming from the root of the pulpless tooth, and to treat such a tooth, it might be necessary to remove important and well constructed work, such as an inlay or a bridge abutment. A radiograph, however, will disclose that the abscess involves the pericementum of the living tooth, and thus the dentist would be saved the mortification of unnecessarily destroying the inlay or abutment attached to the pulpless tooth, and the patient would be saved the annoyance and expense involved in such a misconception of symptoms.

Fig. 207,

From the practice of Dr. M. L. Rhein is a case of this character. The bicuspid is crowned and might have been suspected as the cause of the ab-

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scess, especially as in the radiograph only one root canal filling is seen, but the history of the case made this impossible. The tooth was treated twelve years ago for an abscess, and both canals were perfectly filled, as can be seen in other radiographs of the case in the possession of Dr. Rhein, these radiographs being taken at a slightly different angle. The tooth having remained perfectly comfortable during all of these years, the well defined abscess disclosed at the apex of the cuspid tooth was diagnosed as a pericemental abscess. The tooth in question was absolutely sound, having no filling or cavity of any kind, and when opened the pulp was found to be alive. Also there was no taint of pyorrhea in this mouth. This diagnosis was confirmed by the fact that the removal of the pulp from the cuspid and subsequent treatment through the canal effected a perfect cure.

Case: A sinus discharging near the apex of an upper cuspid. The cuspid had no cavity in it and it responded to the cold test. A radiograph (Fig. 208)

was made, and shows a pericemental abscess on the distal near the apex of the cuspid. Treatment: An incision was made through the external alveolar plate and the sinus thoroughly curetted, then filled with bismuth paste. Result: Cure.

Buckley, in his last edition of his *Modern Dental Materia Medica, Pharmacology and Therapeutics*, prints a radiograph similar to Fig. 208. Before the radiograph was used, in the case reported by Dr. Buckley, the pericemental abscess was diagnosed as an alveolar abscess, due to a dead pulp. The tooth thought to contain a dead pulp was opened, and a vital pulp found. The operators who handled the case experienced a great deal of difficulty in removing the pulp, nitrous oxygen anesthesia being resorted to finally to accomplish it. After removal of the pulp "the tooth (a central incisor) became dark blue in color." In concluding the report of this case, Dr. Buckley says: "The patient in this instance was a lady, and when we recall that the tooth involved was an anterior one, the seriousness of the mistaken diagnosis becomes all the more apparent."

Compared to the occurrence of alveolar abscesses, as caused by infection from dead pulps, pericemental abscesses are rare.

28. In Cases of Persistent Suppuration Which Do Not Yield to the Usual Treatment.

Case: Girl eighteen years old, had had a lower second molar extracted two months previous to the time when she presented to me for treatment.

Fig. 209. The socket from which the second molar had been extracted was an open suppurating sore. The patient was poor, and, wishing to spare her the expense of having a radiograph made, a diagnosis was made to the best

of my ability by other means—by symptoms and instrumental examination. The diagnosis was infection by some particularly virulent pyogenic organisms and a slight caries of the bone. I was unable to locate any unremoved piece of tooth root. The socket was vigorously curetted and cauterized with phenosulphonic acid, a mouth-wash prescribed, and the patient instructed to return in three days. When next seen there was but slight improvement in the objective symptoms, and the patient reported that there had been no abatement in pain and soreness. The lesion



Fig. 209



Fig. 210

Fig. 209. An unerupted third molar which caused sufficient irritation to sustain a suppurating wound from where a second molar was extracted.

Fig. 210. A case of persistent suppuration of several years' standing. The radiograph shows the cause—an impacted, malposed upper cuspid. (Radiograph by Lewis, of Chicago.)

was washed thoroughly with an antiseptic solution, and the patient instructed to return in three days. When seen again there was no improvement over what had existed before the operation. Wishing to get a more complete and reliable history of the case, I consulted with the patient's physician. He had treated the oral lesion before the case came to me, and was of the opinion that it was tubercular. He suggested the tuberculin treatment. A radiograph (Fig. 209) was made to make sure that there was not a piece of the second molar still in the jaw. As can be seen, there is no piece of tooth root present, but what we do see is an erupting third molar. Perhaps I should have thought of the third molar as a cause for the trouble. But I did not until the radiograph was before me. Believing this tooth, in its effort to erupt, to be responsible for a slight irritation and the consequent suppuration, the soft tissues and the bone covering it were dissected away. The result was immediate improvement. I regret that I cannot definitely report a complete recovery,

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but I am sure it occurred. The patient left the city about a week after the last operation, and I have not seen nor heard from her since.

I have already referred to a case of persistent suppuration, reported by Dr. T. W. Brophy, which did not yield to treatment until a radiograph disclosed the presence of a supernumerary tooth, and it was removed. In answer to a letter of mine, asking for a radiograph of the case, Dr. Brophy informed me that it could not be found, and enclosed Fig. 210, saying it was a similar case, *i.e.*, a case of persistent suppuration, which did not

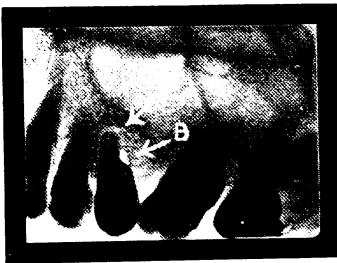


Fig. 211



Fig. 212

Fig. 211. Abscess at the apex of the shell-crowned, second bicuspid. It is very difficult to observe either the abscess or the unfilled canal in the bicuspid in the print, though both show clearly in the negative. The arrow A points to the abscess at the apex of the tooth. The arrow B points to an abscess on the side of the root, caused by the ill-fitting shell-crown.

Fig. 212. Same case as Fig. 211. The dark shadow is bismuth paste. It passes from the apex of the upper second bicuspid downward and towards the second molar.

yield to treatment until the radiograph showed the exciting cause, and it was removed. The history of the case, illustrated in Fig. 210, is about as follows: The upper lateral became abscessed. It was treated, and the canals filled. Pus continued to flow from a fistulous opening on the labial. The abscess was treated through the alveolar plate, but without success. A radiograph was made. I quote Dr. Brophy. "It (the radiograph) exhibits a cavity in the bone, absorption of the apex of the root of the lateral, as well as the apex of the root of the adjacent central tooth. Above is an impacted cuspid lying in a nearly horizontal position. To cure a case of this character calls for most careful study, deliberation and action. The course to pursue is largely dependent upon the condition of the other teeth forming the upper denture. In a young person, the removal of the lateral incisor root, which is crownless and diseased, and the gradual moving downward into its place of the cuspid would be the most desirable procedure. If the patient is in middle life, and the teeth badly diseased and loose, as the teeth here represented are, I would recommend the removal of the diseased teeth, diseased bone, and impacted tooth. The history of this case, with suppuration extending over a period

of several years, so beautifully and clearly illustrated by the use of the Roentgen photograph, impresses us with the inestimable value of this means of reaching a diagnosis."

29. To Observe the Course of the Fistulous Tract.

Dr. Emil Beck, of Chicago, was the first to use bismuth paste* in radiography. The paste is opaque to X-Rays. Thus Dr. Beck would inject a fistula and abscess cavity, then, with the paste injected, make a radiograph. Deep shadows would be cast onto the film or plate by the subnitrate of bismuth, showing distinctly the course of the fistula and the extent of the abscess cavity.



Fig. 213

Fig. 213. Bismuth paste injected into fistulous opening just above the first bicuspid dummy and nearly filling a very large abscess cavity. (Radiograph by Ream, of Chicago.)

The curative property of bismuth paste was discovered truly by accident. After using the paste to enable him to make better radiographs, Dr. Beck noticed that some bad pus cases recovered.

"Cargentos," a colloidal silver oxid, made by Mulford & Company, can be used as bismuth paste is used, for either radiographic purposes or as a remedy.

When the use "to observe the course of a fistulous tract" suggested itself to me, I had in mind a case which I treated some years ago. It was a case in which a fistula pointed externally at the symphysis. Without going into a detailed history of the case, let it suffice to say that a sound and not very badly impacted lower third molar was finally extracted and the case recovered. Probing to the seat of the trouble was impossible, but had the fistula been injected with bismuth paste and a radiograph made, the connection between the third molar and the fistulous opening at the symphysis would have been clearly shown. I regret that I have not been able to obtain a radiograph of such a case. I have not, however, and must, therefore, content myself with a report of the only case I have in which bismuth paste was used to trace a fistulous tract.

*Bismuth subnitrate, vaseline, paraffine and white wax.

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Figs. 211 and 212. Case: A fistulous opening on the buccal near the apex of an upper second bicuspid; the first molar missing. Another fistulous opening on the buccal just above the gingival line of the second molar. A probe entering the fistula above the bicuspid led to its apex. A probe entering the fistula of the molar seemed to lead to the bifurcation of the roots of the molar. Having at a previous date treated the molar, and so knowing the condition of the canals, I was reluctant to believe that the tooth was abscessed. I entertained the belief that both fistulous openings led to an abscess at the apex of the bicuspid, but I could not verify this belief by probing. A radiograph (Fig. 211) shows the canals unfilled, and an abscess at the apex of the bicuspid. It shows also that there is no abscess at the apex



Fig. 214

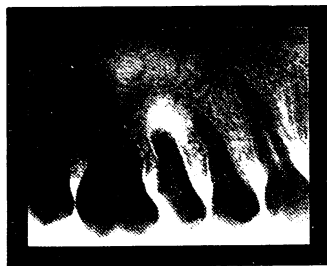


Fig. 215

Fig. 214. Before apicoectomy. Notice the considerable canal filling forced through the apical foramen. (Radiograph by Blum, of New York City.)

Fig. 215. Same case as Fig. 214. After apicoectomy. (Radiograph by Blum, of New York City.)

of the molar roots. But it does not show a fistula leading from the bicuspid to the molar. The shell-crown on the bicuspid was removed and phenosulphonic acid pumped through the tooth and out of the fistula over the bicuspid, but the acid could not be forced through the bicuspid and out at the opening over the molar. The tooth and both fistulous openings were injected with bismuth paste and a radiograph made. (Fig. 212.) I was then able to see that, as I had suspected, the seat of the trouble was at the apex of the bicuspid. The molar did not need treatment. The phenosulphonic acid could not be forced through the bicuspid and out at the molar fistulous opening, because it traveled the path of least resistance out the nearer opening. The fistulous tract could not be seen without injection with bismuth paste, because there was so little bone destruction. Throughout most of its course the fistula traveled between bone and periosteum.

Fig. 213.

A large abscess arising at the apex of the second bicuspid, and discharging above the artificial first bicuspid. Bismuth paste injected into the fistulous tract. Perhaps the cuspid is involved also. It should be tested for vitality of its pulp.

30. To Observe the Field of Operation Before and After Apicoectomy (Root Amputation).

When a tooth fails to respond to less radical treatment, and it is deemed necessary to amputate a portion of the apex of the root, the question naturally arises, how much of the root shall be cut off? A good radiograph



Fig. 216



Fig. 217



Fig. 218

Fig. 216. The apex of the lateral was cut off, then lost. The radiograph shows its location, so aiding materially in its removal. (Radiograph by Ream, of Chicago.)
 Fig. 217. A chronic abscess at the apex of an upper central incisor. The tooth carries a post-porcelain crown and the canal is filled almost to the apex. (Radiograph by Lewis, of Chicago.)
 Fig. 218. The same as Fig. 217 four days after the amputation of the apex of the central and curettement of the pus sinus. (Radiograph by Lewis, of Chicago.)

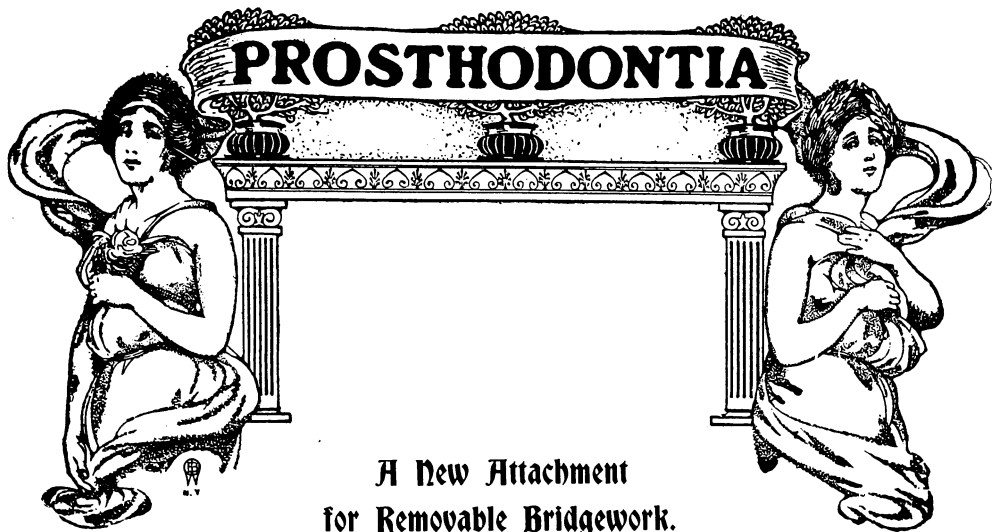
will answer this question. Figure 214 shows that but little of the root need be amputated. Observe that a great amount of canal filling penetrates the apical foramen. Figure 215 is of the same case illustrated in Figure 214 immediately after the operation.

Fig. 216.

In his work on *Materia Medica and Therapeutics*, Dr. Buckley reports an interesting case of apicoectomy, in which the apex was amputated, then lost. A radiograph was made. (Fig. 216.) Dr. Buckley says: "This radiograph aided materially, as it verified the presence of the root-end and its location."

Figs. 217 and 218.

Radiographs from Dr. Buckley's *Modern Dental Materia Medica, Pharmacology and Therapeutics*. They are exceptionally good pictures taken before and after amputation of the apex.



A New Attachment for Removable Bridgework.

By CHARLES F. ASH, D.D.S., New York City.

Read before the Central Dental Association of Northern New Jersey, Nov. 1911.

In deciding upon a title for this paper, I hesitated to use the word "new," as the same general principle was used many years ago, but never, so far as I know, in the form in which it is presented to you to-night.

It would be impossible, in one evening, to consider all the variations of which this attachment is capable. Therefore, I shall describe the making of a single piece, and refer briefly to some of its variations. Assuming for our purpose that the teeth to be supplied are two bicuspid and a molar, the first step will be the preparation of the abutments, which, in this case, will be in the form of a hinge for the molar end, and a lock-box for the cuspid.

The second molar and cuspid must first be devitalized, and the roots properly filled. The molar is then prepared by having the sides paralleled and the occlusal surface cut down to make ample room for good solid cusps.

The next step is to make room for the box which shall receive the hinge joint. This is done by cutting away the whole lingual wall of the molar from the occlusal surface down to the gingival margin until approximately one-third of the diameter of the tooth, bucco-lingually, has been removed. This gives us a deep, square step. (Fig. 1.)

A thin platinum shell, about 36 gauge, is then swaged to completely cover the molar and extend below the free margin of the gum.

The cuspid is then cut off, and the pulp canal prepared to receive as heavy a post as the conditions will permit. Then with a large round bur, followed by a large cross-cut fissure bur, or suitable stone, countersink the face of the root for a considerable space around the post-hole. After

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fitting the post, remove it and swage a piece of platinum to the face of the root and into the countersunk space; then force the post through the platinum floor and into the root, and tack them together with a piece of sticky wax; then remove and solder them together with platinum solder.

This preparation of root abutment has been followed by me for some years, and its desirability is emphasized in this particular class of work. After the model is poured, the protruding post being cut off flush with the face of the root, permits the placing of the facing, the backing and the box, without interference by the post, and when the gold or solder is flowed into the countersunk space and around the post, forms a firm attachment between the foundation and the superstructure.

We now have the frame-work of both abutments.

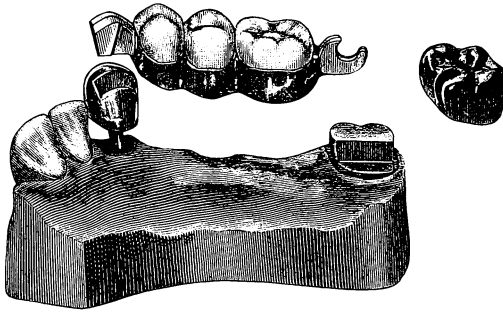


FIG. 1.

By this time the teeth for the case should have been selected, a Steele facing for the cuspid and Davis or Goslee crowns for the bicuspid and molar.

The platinum shell is now placed on the molar (and, by the way, it should fit just as well as the skin on an apple), and the platinum floor and post put in position on the cuspid. A bite and impression are then taken. The impression, of course, is taken in plaster.

Before the cuspid abutment is placed in the impression a thin copper tube and flooring should be made; the tube to fit over the post and the flooring against the under surface of the platinum floor, which, when the model is poured, will represent the face of the cuspid root and the root canal. This will make possible greater accuracy and easier handling.

The platinum molar shell and platinum cuspid abutment, with copper tube, etc., in position, are now placed in the impression, and we are ready to pour the model.

As it is necessary to have a hard model, one that will not chip in handling, it is desirable to fill the first half of the impression with some

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good oxyphosphate cement and finish with plaster, thus providing a model, the working part of which is built of cement.

The model is then mounted on an articulator, and the bite poured.

The molar crown is now built up in wax on the platinum base, contoured and carved to proper occlusion, and the cuspid facing ground and waxed to place.

The two bicuspid and the molar porcelain crowns are fitted on the model at this time simply to help us in obtaining the proper contour of the cuspid and the molar abutments.

The saddle portion, holding the two bicuspid and molar crowns, is then removed from the model.

The next step is the making of the split bars and the boxes to receive them.

Let us make the cuspid attachment first.

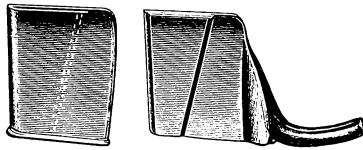


FIG. 2.

Technic for Cuspid Box and Split Bar.

Remove the Steele facing from its backing, and replace it with sticky wax to hold the backing in position. Then remove the wax from the lingual side of the backing. Next, to form the split bar, take two square or oblong pieces of iridio-platinum plate, about 24-gauge, and fit them to the floor of the cuspid abutment, and as close as feasible to the backing of the Steele facing, and shape the occlusal edges to conform approximately to the finished contour of the lingual side of the cuspid. Then a V-shaped piece of iridio-platinum, of about 28-gauge, is soldered with platinum solder to the lingual surface of the split bar. (Fig. 2.) The apex of the V must be towards the floor of the cuspid, the base of the V being about two-thirds as broad as the total space occupied by the split bar on the abutment mesio-distally.

In order that the mesio-gingival corner of the split bar may have proper clearance in putting in and taking out the removable portion of the bridge, and also that the split bar may properly fill the box, the mesial end of the split bar must now be tapered occluso-gingivally. (Fig. 2.)

The distal ends of the bars are then bent away from each other to form a V-shaped space, into which is fitted and soldered with platinum

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solder an iridio-platinum pin or tail-piece (Figs. 2 and 3), which is later on united with the removable saddle by casting.

A box of 30-gauge platinum is then made to accurately fit the split bar thus formed.

The wax on the lingual third of the molar is removed, and a plain split bar made with the mesial ends bent away from each other, thereby forming a V-shaped space into which a tail-piece of iridio-platinum wire is soldered with platinum solder, to be united with the removable saddle by casting.

Molar Abutment.

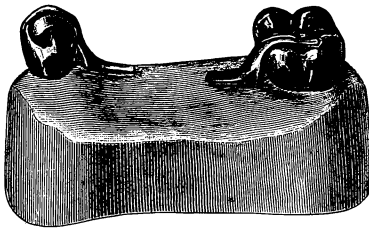


FIG. 4.

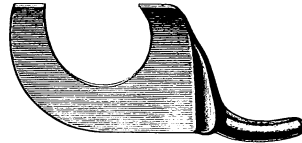


FIG. 3.

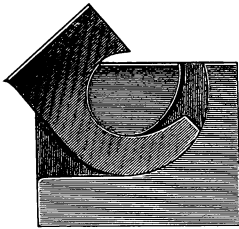


FIG. 5.

A platinum box is made to fit this split bar, and the occlusal edges of both box and split bar fitted to the bite, as in Fig. 4. The platinum boxes are now waxed in place on their respective abutments, and while their horizontal planes may differ, care must be taken that both boxes have the same vertical plane. The wax of both abutments is then carved to proper contour, and the sticky wax on the labial side of the cuspid backing being, of course, removed, the abutments are then invested and cast.

The split bar for the molar attachment is then formed in the shape of a hook or sliding hinge (Figs. 3 and 5, the latter being a sectional view), a general description of which is as follows: (See diagram.)

At a point sufficiently below the deepest indentation of the bite to allow for proper thickness in the bite contact, draw a line A B across the occlusal edge of the split bar and parallel with its gingival edge. Then at a point C, midway between the distal end of the split bar and the point at which the split bar protrudes from the box, draw a line C D, perpen-

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dicular to A B, from A B to the gingival edge of the split bar. Let E be a point one-fifth the distance from C to D, and G a point so that C G equals G D. With E as a center, and a radius E G, draw a circle intersecting A B at F and L, and with the same center and radius E D, draw a segment of a circle D M, intersecting A B at M. Draw the diameter F, E, H, and with F as a center and radius F H, draw the segment of a circle H K, then F K will be equal to F H. Then cut along the lines M D and K H G F.

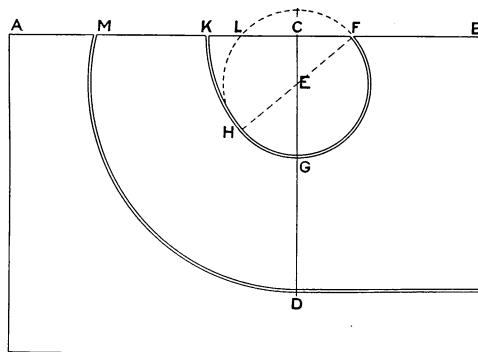


Diagram showing construction of Figs. 3 and 5

The cuspid and molar abutments are now placed on the model and the split bar attachments in their respective positions in cuspid and molar. (Fig. 4.)

The waxed-up removable saddle is then replaced in position on the model, and the tail pieces of the split bars are securely incorporated with the wax of the saddle. The saddle and split bar attachments being firmly waxed together, it is desirable at this point to approximately trim the mesial end of the wax saddle to allow for clearance for the finished piece to be put in and taken out.

The saddle and split bars are then removed from the model and the saddle cast, uniting with the tail-pieces of the split bars, the porcelain crowns, of course, being first removed from the saddle.

We now have our piece practically completed except for the closing in of the box at the molar end, and making the final adjustment for clearance, but these last touches require more care and nicety of handling than perhaps any other part of the work.

The molar box has been left open up to this point to allow for some slight contraction in casting the saddle. A strip of thin platinum of the

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same width as the box is now burnished over the hinge of the molar split bar, and the saddle and split bars, with the thin burnished strip in place, are put in position on the model, and the platinum strip is waxed in place. The saddle and split bars are then removed from the model, leaving the thin platinum strip waxed to place in the molar box.

That part of the molar box, which was occupied by the split bar, is then carefully filled with asbestos, and the wax burned out and replaced with solder to contour to occlusion.

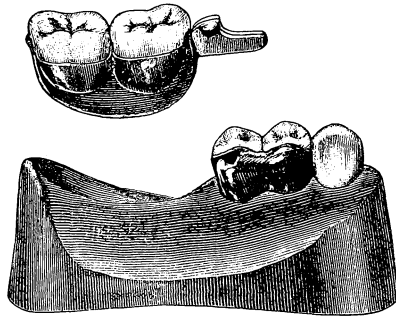


FIG. 6.

The parts are then assembled on the model and the clearance for the mesial end of the saddle to pass the cuspid is then finished. The occlusal edge of the cuspid split bar is finished flush to contour with the lingual side of the cuspid.

The whole piece polished and the porcelain crowns cemented to place. we now have our bridge ready for the mouth, and, if the proper care and exactness have been observed, you can cement your abutments to place without even trying it in, and the saddle will go to place and fit as do these specimen pieces which are here shown you. (Fig. 1.)

The applicability of these attachments is so great that it would be futile to attempt to mention all of its possibilities. One of the most valuable, I consider to be that of the lower extension bridge (Fig. 6), supplying one or two molars or two molars and a bicuspid, and can be used in either long or short bite cases, as you will see by models which I present herewith.

Another application is for a double lower extension with iridio-platinum bar connection, a practical case of which I am able to show you to-night in the mouth, through the kindness of one of my patients.

I have also supplied a full upper on four abutments. An upper of ten teeth on five abutments, illustrations of which I present herewith.

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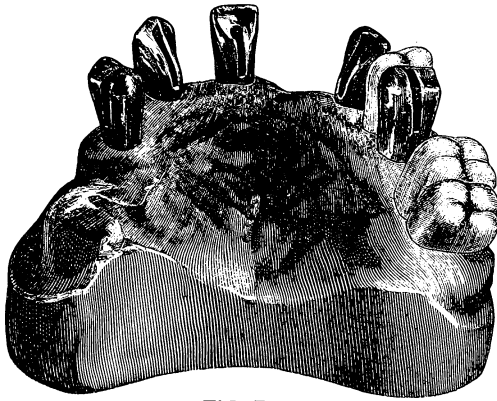


FIG. 7.

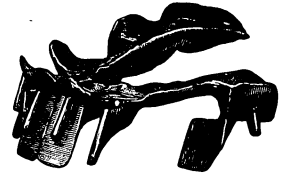


FIG. 8.

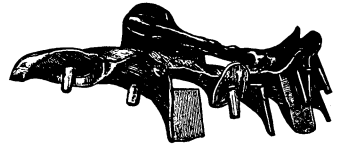


FIG. 9.

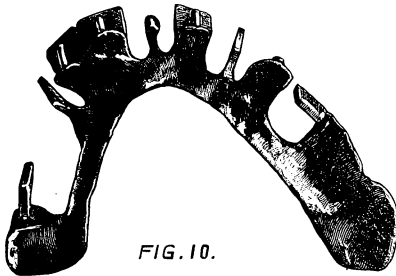


FIG. 10.

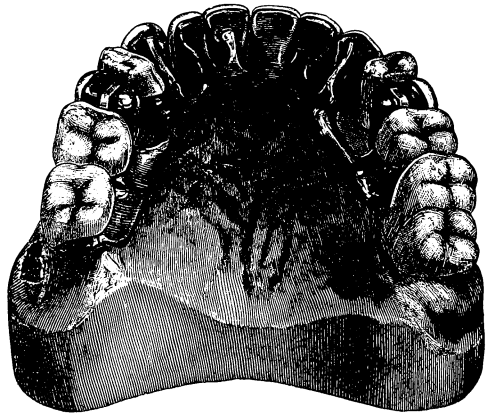


FIG. 11.

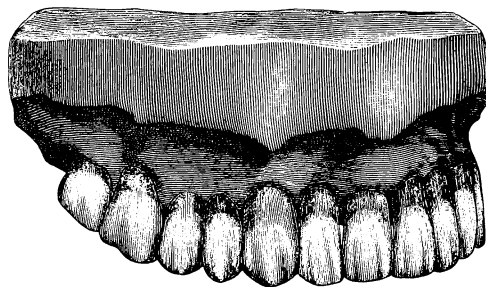


FIG. 12.

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(Figs. 7, 8, 9, 10, 11 and 12.) I have also used this system successfully in an upper extension, supplying two molars and one bicuspid on the left side. In this latter case I used the sliding hinge on the mesial end, with the box for its reception in the first bicuspid and cuspid on the side to be supplied, and from the distal end of the saddle ran a half round iridio-platinum bar across the roof of the mouth, with a split bar attachment in a cast gold molar crown on the right side.





A Consideration of Certain Types of Dento-Facial Deformity.

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Professor of Orthodontics and Oral Surgery, Dental Dept., Marquette University,
Milwaukee, Wisconsin.

Read before the Eleventh Annual Meeting of the American Society of Orthodontists, Boston, Mass.

Literature and research in orthodontics during the last decade have undergone such wonderful transformation that it would seem to many that there is little left for consideration and debate. In these days of scientific investigation we are prone to think that each succeeding decade has settled the larger problems of research, not only for itself, but for all future time.

"We are the heirs of all the ages; after us, the deluge," is a saying that can be attributed to many really great men. It is related that as Daniel Webster was closing the term of his long and distinguished public service, Charles Sumner was just entering upon a public career equally long, and, if possible, more distinguished. In congratulating Mr. Sumner upon his election to Congress, the venerable Webster said: "Sumner, you have come too late; all the great public questions have been settled." Yet Sumner, as we know, was a participant in the consideration of questions so momentous that Webster and his colleagues shrank from seriously discussing them.

I confidentially believe, however, that for the research student there still remains much to be accomplished, especially as regards an intelligent understanding of the etiology, diagnosis, treatment and prognosis of certain types of dento-facial deformity.

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Our present method of diagnosis, wherein the occlusal inclined planes alone guide us, seems to me inadequate for the orthodontic specialist. I do not wish to infer that Angle's classification has not served a good purpose in the past, for it gave to the orthodontist a splendid opportunity to broaden his views for further investigation and study. But it has its limitations; it is not sufficiently comprehensive, and is sorely in need of an improved terminology.

According to Angle's classification, a diagnosis need only embrace abnormal relation of the dental arches and malposition of the teeth. It is obvious that this method is too limited for the specialist who desires to correct deformities which extend beyond the confines of abnormal position of the inclined planes. While occlusion must always be recognized as a fundamental postulate in the correction of malocclusion, it can only serve as an aid, but not as an absolutely sure guide for the diagnosis of all dento-facial deformities.

I have often been asked, "Can a satisfactory diagnosis be made of all forms of malocclusion by using the above classification for a basis from which to work?" My observations compel me to answer in the negative.

Since Angle's classification of malocclusion was introduced into the profession, a number of writers have attempted to devise improvements, or to recommend a more suitable method of orthodontic diagnosis. But the only proposal thus far advocated, which is sufficiently comprehensive, is Lischer's, whose modification of the Angle classification is a real improvement, and particularly in its terminology.

Lischer recognizes three conditions, each reducible to elementary divisions, regardless of their manifold combinations. These are: (1) Malformation of the Jaws and their Processes; (2) Malrelation of the Dental Arches; (3) Malposition of the Teeth.

Malformation of the Jaws.

1. *Macrognathism*—over-development.
2. *Micrognathism*—arrested development.

Prefixes:

- a. Mandibular or lower.
- b. Maxillary or upper.
- c. Bimaxillary—when both jaws are similarly affected.

Suffix:

"*Gnathia*"—meaning jaw.

Malrelation of the Arches.

1. *Distocclusion*—distal relation of lower.
Unilateral—one side only.
Bilateral—both sides.

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2. *Mesioclusion*—mesial relation of lower.
 Unilateral—one side only.
 Bilateral—both sides.
3. *Neutroclusion*—in neither direction.
 Neutral relation of lower to upper.
 (Angle's class 1)
 The ending *clusion* from the Latin *claudere-clausum* to close.

Malposition of the Teeth.

1. Labioversion—Labial to normal.
2. Linguoversion—Lingual to normal.
3. Buccoversion—Buccal to normal.
4. Distoversion—Distal to normal.
5. Mesioversion—Mesial to normal.
6. Torsoversion—Rotation.
7. Supraversion—Elongation.
8. Infraversion—Shortening.
9. Perversion—For impacted teeth.
10. Transversion—For transposed teeth.
 The ending *version* from the Latin *vertere*—to turn, to change position.

This method of classifying the malrelation of the dental arches and malposition of the teeth is very applicable in making a differential diagnosis, as far as it concerns the orthodontist. But *Malformations of the Jaws*, subdivided only as over-development and under-development, does not cover all deformities. For instance, Blair divides jaw deformities into six classes: Class 1, Normal lower jaw protruding forward. Class 2, The body of the lower jaw relatively retracted. Class 3, The anterior part of the lower jaw protruding on account of abnormal length apparently in the bicuspid region. Class 4, The upper or the lower jaw deficient, on account of lack of certain teeth in either. Class 5, The two molars in occlusion; the anterior teeth fail to occlude by increasing distances, due to a bending downward in the body of the mandible. Class 6, Deformities resulting from abnormal extraneous forces, such as the contraction of scars; spasms or paralysis of the muscles other than those of mastication. You will notice that this division is applicable to the lower jaw only. Careful observation of such deformities of the lower jaw has convinced me that the mandible is more frequently in malposition than actually deformed. I am also satisfied that many distocclusions, or so-called Class 2 cases, are not a distal shifting of the lower arch, but a distal shifting of the mandible carrying the lower arch backwards.

This phenomenon is easily produced during the period when the

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glenoid fossa is being formed. Careful observation and dissection of a number of fœtuses and infants have satisfied me that this fossa is exceedingly shallow in infancy, and develops in depth and size simultaneously with the eruption of the teeth.

At this time I am unable to furnish exact facts pertaining to the development of the temporo-mandibular articulation. I hope to have a complete report after another season's dissection. However, it is evident to me that a malposition of the mandible, especially distal shifting of this bone, is common during the age of dental growth, when the glenoid fossa is shallow.

Distal Malposition of Mandible.

As a result of my clinical examination of abnormalities, where I have found the lower arch distal to normal, the upper arch narrow, with the anterior teeth in labioversion, I became convinced that, by expanding the upper arch and reducing the slight protrusion of the upper anterior teeth sufficiently to occlude mesio-distally with the teeth of the mandible, providing the patient voluntarily brings the lower jaw forward, I could obtain a correct relation of the teeth and improve the facial lines. I have also found, after much experience in the treatment of these cases, that when I attempted to correct the abnormalities after the patients had reached the age when the teeth had all erupted, and after the alveolar process and the jaws had developed, and the muscles had become stronger and more set, the treatment, notwithstanding the use of modern retainers, would, in most cases, prove futile. If these cases of abnormality had been treated during the time when the dental area was developing, then there would have been no tendency of the teeth to assume their original deformed position.

Treatment of cases in which the dental area was already developed was invariably unsuccessful, while on the other hand opportune care during the age of dental growth proved successful in every case.

I question the possibility of orthodontists to successfully correct distal malrelation of the mandible after the development of the glenoid fossa. The shifting of the lower dental arch mesially in such cases no doubt can be accomplished, thereby obtaining normal occlusion. Such results, of course, may satisfy the operator, but to me it seems to be nothing short of pseudo-orthodontia. I am confident that the relation of the dental arch to the lower jaw is usually normal. I believe that the lower first molar will usually erupt in a normal position, and, should it occlude distally, it is usually due to the distal malposition of the mandible.

The etiology of distal malposition of the mandible can usually be traced to some form of nasal stenosis, forcing oral respiration. Thus we



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find the mouth more or less open, the tongue occupying an abnormal position. This position will sooner or later change the mechanical action of the depressor agents of the mandible, namely: first, the platysma myoides muscle; second, the digastric muscle; third, the mylohyoid muscle, and fourth, the geniohyoid muscle. These muscles, assisted by gravity, that is, the weight of the jaw, keep the mouth open, while the anterior segment of the temporal muscle, the masseter muscle and the internal pterigoid muscle antagonize the depressors of the mandible. This abnormal action of these opposing muscles will be influential in changing the development and position of the mandible.

This condition can only be brought about during the period of tooth eruption. The damaging results of nasal stenosis can bring on a number of complications involving the growth and development of the dental area. Strange as it may seem, the general practitioner, as well as a large number of rhinologists, labor under the impression that the correction of nasal stenosis is all that is necessary to bring about nasal breathing, paying no attention to the normal development of the mouth, jaws and face, complicated by malocclusion.

I recall having had a patient report at my office, accompanied by her parents, who informed me that six months before, the little girl had had her adenoids removed by the family rhinologist. He informed them that after the adenoids were gone she would be able to breathe normally, and that it was not necessary to come for further treatment. The removal of the adenoids failed to give the little girl any relief, as she continued to breathe through her mouth. I carefully examined her, and found that the lower jaw was distal to normal, the arches then being in distocclusion, the lower lip beginning to rest against the lingual surface of the upper anterior teeth.

There can be no question but that this abnormality was a secondary condition arising from a pathological manifestation producing nasal stenosis. I could not understand why this little girl should continue to breathe through her mouth after her adenoids were removed. I doubted the results of the operation, and proceeded to make a careful digital examination, and I was astonished to find that the adenoids were still there. I suggested another operation permitting me to remove this mass of tissue. The patient was anesthetized under chloroform, and the entire mass was removed. One week later the patient was placed under orthodontic treatment, and she is now developing along correct anatomical lines.

The discovery of this attempted adonectomy urged me to more frequently investigate the results that were obtained in my patients who have had their adenoids removed. Much to my regret, I was astonished to find that there are in the medical profession pseudo-rhinologists who

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would be far better off following a plow behind a lonely mule. When rhinological progress equals that of orthodontics, then, and only then, can we expect a hearty co-operation in the development of the nasal and dental area.

Nasal Stenosis.

I do not wish to infer that dento-facial deformities and malocclusion are always due to adenoids, but I believe that occlusion of the nasal passages, be it partial or complete, will usually produce an arrested development of the maxillary bone, sometimes complicated by a distal shifting of the mandible. Patients, inheriting long, narrow faces, with high, thin noses, orbital cavities, accessory sinuses and nasal chamber very small, have alveolar processes limited in size, and the teeth in malposition. The nasal pharynx being small, it is but natural that such patients are liable to suffer considerably from nasal stenosis, produced by inflammation and other pathological conditions. The smallest portion of pharyngeal tonsil may produce complete stenosis. Such patients are usually a type developed from ancestors who have suffered for centuries from the effect of nasal stenosis and oral respiration. In other words, it may be assumed that disuse of the nose and mouth breathing for generations past, produces a facial characteristic called leptoprosopia, a type we commonly call an adenoid face. Patients having a large nasal pharynx never suffer to the same degree from stenosis as do patients having narrow faces. Although adenoids and other pathological conditions may be found in these subjects, they usually remain unnoticed, because they have plenty of room to breathe through the nose, and so, suffer very little inconvenience. These patients will go on developing along anatomical lines, the teeth erupting normally and the jaws functioning properly.

Lowering of Palate Not Possible.

In recent years there has been much discussion and much space has been given to the articles in dental and medical journals pertaining to the lowering of the palate by widening the upper arch, so as to increase the space of the nasal channels for the correction of mouth breathing. Many believe, however, that by mechanical force the two maxillary bones can be separated at their suture line, and that this kind of treatment would allow a deflected nasal septum to drop between the suture. Others have believed that by widening the upper arch, the palate would be lowered, permitting the septum to become straight. In the minds of students in research work pertaining to the embryological and anatomical development of the mouth, jaws and face, this has been questioned, and considered a subject of much speculation and debate.

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In my own practice of eight years of orthodontic work, I have proven to my own satisfaction that it is an anatomical impossibility to lower the palate by widening the arches, or to separate the maxillary bone at the suture line after the developmental period. While a casual comparison of the dental arches and palate of carefully constructed models, made before and after treatment, would lead one to believe that the depth of the palate is less in the after-treatment case, careful measurements prove the contrary. It is but natural that a narrow dental arch, especially if it has excessive alveolar processes, would make the palate look deep and narrow; and that after careful widening of the upper arch by proper orthodontic treatment, it would seem that the palate were lower. This, however, I find not to be the case. What is accomplished is a reconstructed arch, wider and more symmetrical, which gives the appearance of bounding a shallower palate. In order that you may better understand me, let us take, for example, an ordinary drinking glass. The depth of the drinking glass, according to its width in comparison, appears to be excessive, but suppose it were possible, by some mechanical process, to enlarge the circumference of that glass to four or five times its size; the result would be a vessel which would resemble a soup bowl. Considerable study and work on abnormally shaped septa as to the etiology, prognosis and treatment, convince me that it is not possible, especially after the developmental period, to correct a malformed septum by radically expanding the upper arch, nor do I believe that it is possible to overcome mouth breathing by radically expanding the upper arch, regardless of occlusion, for the purpose of supposedly enlarging the nasal channels.

In an examination of fifty cases of mouth breathers, where the upper arches were more or less contracted, and the anterior teeth protruding, or crowded, I found only seven cases where the septum was deflected. In each case the patient gave the history of traumatism. In these fifty cases of contracted arches, I found forty-two cases of distocclusion and one neutroclusion. In other words, the lower jaw in forty-two patients out of fifty were distal to normal, thereby giving the patient a stupid, vacant expression. This deformity prevented the patient from closing the mouth normally without effort. This abnormal condition, you can see, will be a factor in the patient's continuing to respire through the mouth and, of course, the nose thus fails in its purpose to functionate. Unquestionably these abnormalities of distal shifting of the mandible are secondary conditions arising from a pathological condition producing nasal stenosis.

Here I wish to emphasize the fact that when once there is an abnormality of this kind produced, the rhinologist cannot hope to remedy it by correcting nasal stenosis, but will need the assistance of the ortho-

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dontist to carry on the work in changing the mouth deformity, so that the patient will be able to close the mouth naturally and without any conscious effort, thereby permitting the nose to functionate and develop accordingly. Let me caution you that even though the purpose be to improve the nasal passages, radical expansion of the upper arch, regardless of occlusion, is dangerous. It will fail in its purpose. Why? Because in trying to remedy one evil, we create another. Such radical procedure sacrifices the function of the teeth by establishing an inharmonious relation of the dental arches. I doubt very much the possibility of gaining space in the nasal channels by such radical procedure.

When we consider the development of the nares taking place simultaneously with the growth of the maxillary bone, I cannot but feel that orthodontists should widen the arches by a slow technical treatment. In other words, it should be in the form of a carefully trained physiological growth. Day by day, week by week, month after month, and without pain to the patient, the orthodontist should grow each and every tooth into correct anatomical relation with its antagonist in order to give the patient teeth which will enable him to triturate and masticate his food for its introduction into the alimentary canal. The teeth of the upper and lower jaw will then have the power to functionate normally, and, in consequence, the muscles of mastication, by the proper activity, will supply the amount of lymph and blood to the parts requisite for their development. Thus, from the increase of nourishment sent there, the maxillary and adjacent bones may be properly developed. We can then readily understand how the nasal chambers become wider as the nose resumes its function of development. The orthodontist should grow the maxillary bones where nature fails in proper tooth movement. I do not wish to infer that narrow nasal chambers can always be widened by orthodontic treatment; but I do know that where the pathological condition of the nose hinders nature in developing the nasal and oral areas, it is frequently possible at the proper age to stimulate normal development of the nose, jaws and face by orthodontic treatment.

A discussion of mandibular deformities I purposely omit in this paper, as I feel that the subject has been well taken care of by such men as Blair, Ballin, Babcock, and others.

I wish, however, to call your attention to the importance of early surgical correction in cases where malocclusion of the teeth is complicated by a congenital deformity characterized by a cleft involving a part or all of the hard and soft palate. Alveolar cleft is congenital, and is a serious condition which confronts the oral surgeon and orthodontist.

Malocclusion and Cleft Palate.

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The defect varies in different subjects. In the more severe forms of cleft palate, a cleft continues from the tip of the uvula to the anterior palatine canal. It then bifurcates to communicate with a double alveolar cleft, permitting the forward displacements of the central portions of the intermaxilla or *os incisivum*. German writers usually call this form of deformity "Wolfsrachen" or "Wolf's Jaw." The displacement of the central portion of the intermaxilla always produces a pronounced deformity, which is complicated by a double cleft of the lip. The correction of this deformity can be accomplished only by surgery. Operators in the past

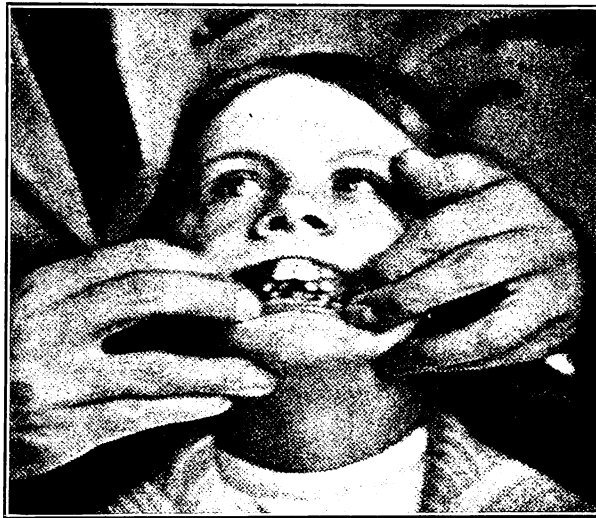


Fig. 1

would remove the entire central portion of the intermaxilla for the purpose of overcoming the excessive protrusion. This is rarely necessary now, as the technique in surgery has been so much improved that it is now possible at an early age to force the central portion into its normal position, thereby preserving some, if not all, of the four incisors. The result of such an operation I find in my practice has a tendency to deflect the normal eruption of the incisors, necessitating further treatment by orthodontic methods.

A single alveolar cleft always produces malocclusion of the teeth. The cleft is usually found on the left side in the region of the upper lateral. This deformity, though not as pronounced as a double alveolar cleft, can only be remedied by surgical procedure.

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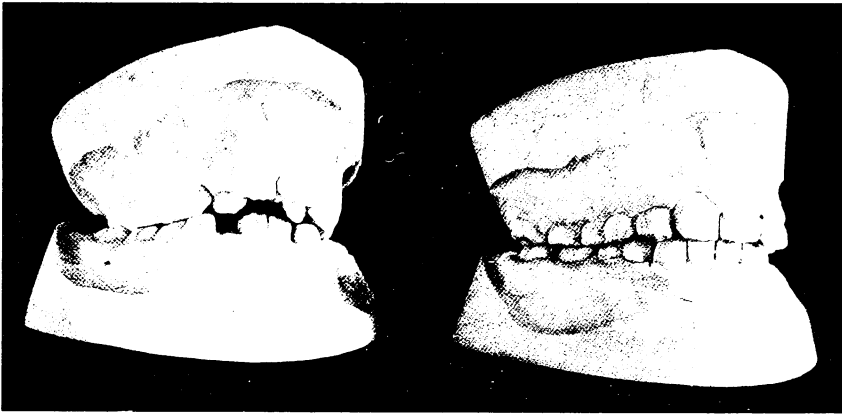


Fig. 2

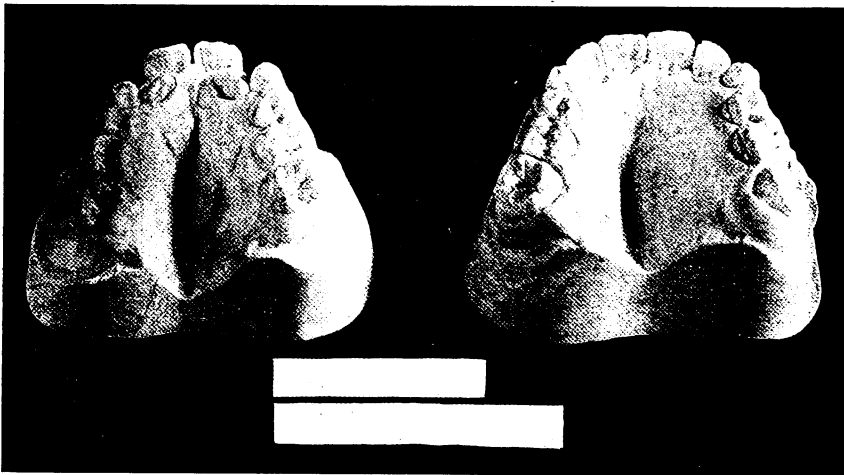


Fig. 3

The treatment of these cases by some operators is to forcibly close the cleft by pressure at an age when the bones will yield, which is usually any time within eight weeks after birth. This method of treatment in the hands of the inexperienced will usually produce a complicated condition; by that I mean that the tendency is for one side of the alveolar process to override the other, producing a buckling of the anterior portion of the alveolar process. While I must admit that such procedure of forcible contraction will close the cleft, I have abandoned this method of cleft

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palate operation, as I endeavor always to maintain the shape of the upper dental arch. I, therefore, in my operations for the closure of a complete cleft palate, always close the alveolar cleft first. This can be accomplished by forcible pressure, providing the patient is young enough, so that the borders of the cleft will be placed in contact. Should I find it impossible to bend the alveolar process, I usually produce a green-stick fracture, thereby preserving the shape of the arch. At a subsequent operation I then produce the muco-periosteal flaps and close the cleft of the soft and hard palate.



Fig. 4

Summary of Cases.

Case 1. Fig. 1. Shows the photograph of a boy who had been operated upon for the removal of adenoids and tonsils, but continued to breathe through his mouth.

Fig. 2. Shows casts of the teeth of this boy before and after orthodontic treatment. In this case it was necessary to reconstruct the upper arch, making it wider and more symmetrical. The lower jaw was shifted mesially, so that the relation of the inclined planes is correct.

The next picture, Fig. 3, shows the palatal view of the casts of the same case. Notice the strips of paper which illustrate the amount of space gained by widening the upper arch. Measurements prove that the palate was not lowered, but there was considerable widening of the nares brought on by growth.

The next picture, Fig. 4, is a photograph of the same boy one year after treatment. Notice the normal relation of his teeth, permitting him to close his mouth without effort. The nose being developed simultaneously with the growth of the jaws, he can breathe through his nose freely.



Fig. 5

Case 2.

Fig. 5 shows the casts of a pronounced malocclusion of the teeth, due largely to receiving improper treatment when under the care of dentists and rhinologists. The upper and lower first molars were extracted when the patient was a mere child. The upper left lateral and right cuspid were also extracted because the dentist at that time believed that the boy had too many teeth in his mouth on account of the crowded condition.

The patient, anxious to have a normal mouth, consulted another dentist, who informed him that it would be advisable to have the four lower incisors extracted. He, too, believed that there were too many teeth in the arch on account of the crowded condition of the boy's teeth. The lower incisors were then extracted, and a bridge (containing two large centrals with crowns on the cuspids) was fitted to take the place of the lost teeth. As the patient grew older he realized his inability to masticate his food properly, and he also found it very difficult to breathe through the nose. He consulted a rhinologist, who advised him that he could effect

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a cure if he would permit him to perform an operation. To this the boy consented, and he was operated upon for partial removal of the lower turbinates, adenoids, etc., together with a complete removal of the contents of his pocketbook, and again the young man failed to be relieved.

The next picture, Fig. 6, shows a photograph of the patient. Notice that it is an effort for him to close the lips. The nose has failed to de-



Fig. 6

velop on account of the maxillary bones being retarded in their development. Had this young man received the proper treatment during the period of tooth eruption and growth, by an up-to-date orthodontist and rhinologist, he would then have had a normal relation of his teeth, which would have enabled him to masticate properly, thereby stimulating enough lymph and blood to the adjacent parts for proper growth. This young man at the present time is under my care. Both upper arches have been considerably enlarged, and he is beginning to breathe better.

Case 3.

Fig. 7a shows the teeth of a dental student attending Marquette University. When I first examined this young man I found that he was a mouth

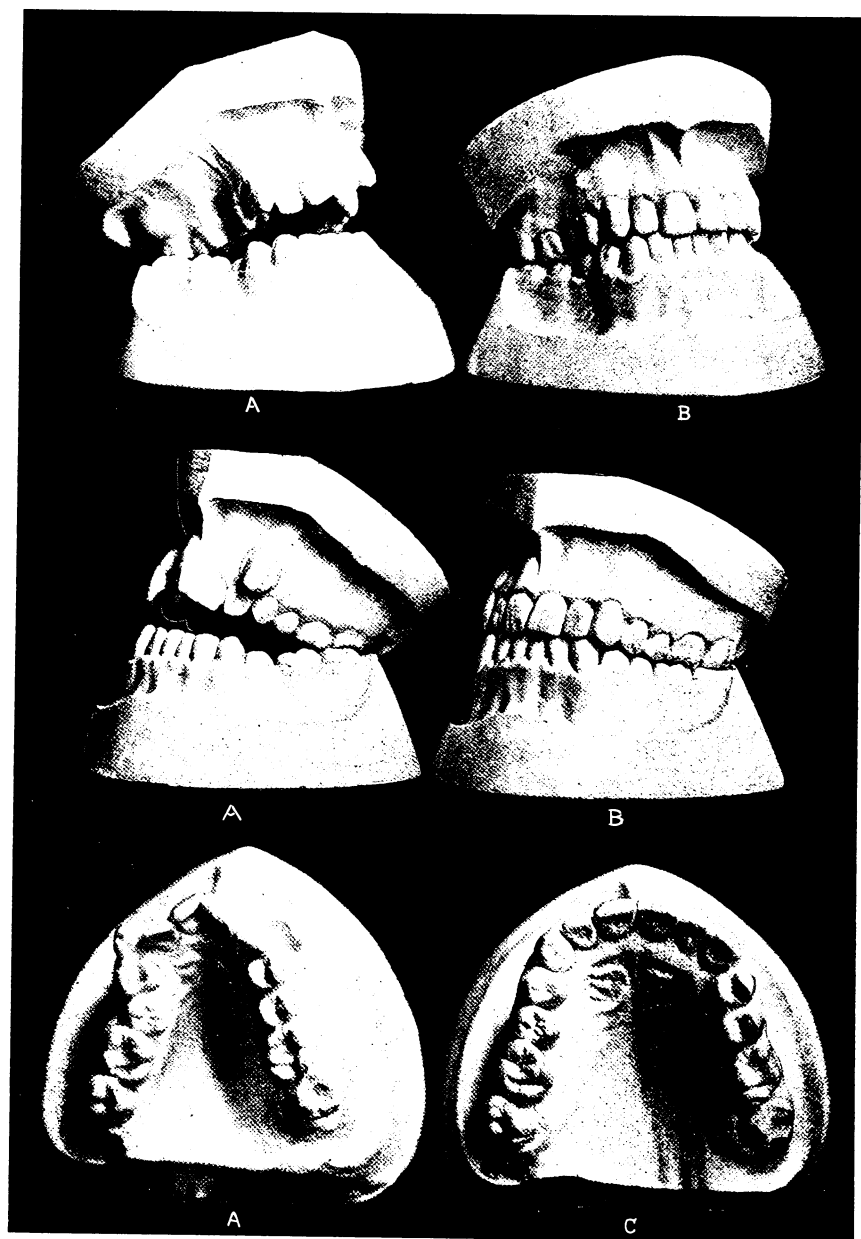


Fig. 7

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breather, his nasal channels were undeveloped, and only the two molars occluding, the upper arch being considerably contracted, and all of the upper teeth anterior to the two molars being in infraversion, the arch relations in neutroclclusion. The upper jaw micrognathic. The patient could not masticate his food very well, and his inability to speak distinctly caused him to be rather timid and shun the society of his classmates. Age, 19 years.



Fig. 8



Fig. 9

Fig. 8 shows the picture of the young man undergoing orthodontic treatment. You can readily see that his dento-facial area is undeveloped, and he has a rather pinched look. On account of his being a dental student I felt that he would make an excellent clinical patient, so that his classmates might be given an opportunity to note the changes that can be accomplished in correcting his deformity. He was placed under treatment in the middle of February, 1909. The upper arch (see Fig. 7c) was slowly expanded, and at the same time the teeth were so ligated that there was a downward pressure. The young man was given the best of care possible, and a few weeks before he graduated, which was May 24, 1911, I removed the appliances and fitted the retainers.

Fig. 7b shows the present relation of his teeth. The development of the superior maxillary bone had a wonderful tendency to stimulate the enlargement of the nasal channels. The young man breathes freely through his nose, and is able to functionate his teeth properly. This slow, technical treatment was nothing but a physiological growth. I want to throw on the screen the wonderful change in the young man's face. Fig. 9. He sent to me with his picture the following letter, which I think I should read, showing his appreciation of what has been accomplished for him by orthodontic treatment.



Fig. 10

"THERESA, WIS., June 28, 1911.

"DR. M. N. FEDERSPIEL,
"Milwaukee, Wis.

"MY DEAR DOCTOR:

"Have just received my license, and began to practice here. I have never so fully realized the deep gratitude I owe to you as I do now. Three short years ago I entered Marquette University and first met you. I can still clearly picture myself in that deformity which had developed in me a timidity, due to lisping, inability to talk, and a self-consciousness that every cripple develops. I was physically incompetent to cope with others in anything. I shudder to think how wholly unfit I would now be

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to meet the public in my chosen profession in that condition. All these drawbacks have been eliminated by the wonderful, great work you have done for me, and which everybody pronounces most wonderful.

"Wishing you the same success in still greater deeds, I remain,

"Yours very thankfully,

"ALPHONS W. KOLL, D.D.S."



Fig. 11

Case 4.

Miss E. S., nine years old; excellent health; had congenital cleft of the lip, alveolar process, and hard and soft palate. See Fig. 10.

You will notice that the alveolar process is divided between the left central and the rudimentary left lateral. The alveolar process on the right side was turned outward, and protruded to such an extent that it caused a distortion in that region. It was necessary to reconstruct the shape of the dental arch before doing anything further. The patient was anesthetized with ether, and an incision was made between the right deciduous cuspid and the right permanent lateral. The muco-periosteal flaps were raised and retracted. The exposed bone was cut one-half its thickness by a narrow, long fissure burr, then by forcible pressure the protruding alveoli containing the lateral and the two centrals were brought in contact with the alveoli on the opposite side, thus producing a green stick fracture. The contact surface was then freshened and the alveolar bones brought together. (See Fig. 11.) Then in order to immobilize these parts into their normal positions, I slipped the alignment bar into the tubing on the bands, which I had previously cemented on the posterior teeth, and ligated to the alignment wire all of the anterior teeth.

The patient's mouth was kept as clean as possible, and four weeks later the appliance was removed, and bone union had taken place. This operation restored to a fair degree the shape of the dental arch and, as a result, the cleft of the lip became more narrow. When I operated upon the patient a second time for the correction of this defect, I obtained better results than if I had attempted to close the lip before the shape of the



Fig. 12a

Fig. 12b

dental arch had been restored. (See Fig. 12a and b.) The patient was instructed to report at my clinic after a summer's rest to have the hard and soft palate closed.

Conclusion.

The summary of what I advocate in this paper is:

- (1) The importance of making a differential diagnosis between malposition of the teeth, arch malrelation, malformation of the jaws and malposition of the jaws.
- (2) That correction of distal malposition of the mandible can only be made during the development of the glenoid fossa.
- (3) That nasal stenosis produces inequality of muscular action, which, in turn, is influential in causing malocclusion and dento-facial deformities.

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(4) That orthodontists should become proficient in recognizing defects of the nose.

(5) That it is impossible to lower the palate by widening the upper arch for the purpose of increasing the space of the nasal channels.

(6) That radical expansion of the upper arch, where occlusion is ignored, should be discouraged.

(7) That the enlargement of the nares takes place simultaneously with the growth of the maxillary bone.

(8) That the widening of the dental arches by a slow, technical treatment is a physiological growth.

(9) That in correcting alveolar clefts the shape of the dental arch should be maintained.

Discussion of Dr. Federspiel's Paper.

**Dr. Eischer,
St. Louis.**

The essayist's first contention regarding the importance of a differential diagnosis hardly permits of discussion; it is one on which all of us can agree, providing we accept at least some of his remaining ones. But it suggests the most important question I can ask, viz., how are we to differentiate between malformation and malposition of the mandible in a living subject? I frankly confess that this appears to me a difficult point for decision. And while it may seem as an undue request, I would suggest to him, nevertheless, that he develop some method whereby such differentiation can be rendered easy and certain. I can think of no adequate reasons why such an anomaly may not be within the range of possibilities, though I have not particularly observed it. Nor has the essayist produced the necessary evidence of its existence.

The various normal developmental stages of the glenoid fossæ have frequently been referred to in our literature, particularly by MacDowell, and I hope that the essayist's promise of a more complete report a year hence will be fulfilled, and thus permit him to go into greater detail regarding abnormal cases. The importance of this subject fully warrants further investigation.

His arguments regarding the prognosis of distocclusion, that the probability of its successful treatment is in inverse ratio to the age of the patient, are well taken. Indeed, I have long been of the opinion that if we would look beyond the teeth of their immediate alveoli, if we would extend our observations beyond plaster models and include skulls exhibiting these deformities, we might arrive at conclusions of great significance. In fact, I have regarded this subject of such importance that I have had a standing order for six years with a leading osteologist to forward all such skulls to my address, but without any success.

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The part played by nasal obstruction in the production of oral deformities has in recent years been thoroughly recognized. And in this connection permit me to quote a statement by Lambert Lack, which reads:

"The evils of nasal obstruction have been grossly exaggerated in some directions, and too much importance has been ascribed to quite trivial degrees of obstruction. Operations to relieve slight defects of which the patient was wholly unconscious have been so frequently performed that the whole subject has been brought into disrepute. This is very unfortunate, as the full significance of some results of nasal obstruction is perhaps even yet generally unappreciated."

It appears to me as more important that the orthodontist have the hearty co-operation of a competent rhinologist, than that he master the recognition of the various nasal defects.

I believe the evidence put forth in support of the contention that a palate may be lowered by rapid expansion of its dental arch is entirely inadequate and quite inaccurate. As Dr. Federspiel intimates, mere appearances do not prove that the palate has been lowered. Measurements, in such instances, should be made from definitely fixed points, *e. g.*, the occiput, the entrance to the external auditory meatus, etc. The adjacent teeth, which are moved during treatment, are unreliable points.

Dr. Federspiel has failed to mention the variations of the symphysian angle, which at times fall within the range of the pathological, and the deformities of the lips. Redundancy or deficiency of these parts, particularly the latter, frequently affect the profile to such an extent that orthodontic treatment without the aid of plastic surgery is decidedly inadequate for the restoration of normal facial contour. All his other arguments I heartily approve.

Finally, his paper silently emphasizes a point to which he does not refer, but which to me seems most important, *viz.*, the keeping of records. Many of the questions he has put before us could be definitely settled if we had kept better records, and had so classified their data that they would be more readily available.

The essayist first deals with classification. It was my pleasure this summer, during my vacation in Canada, to run into this same "nightmare" or bone of contention. The speaker on that occasion tried to tell me that the Angle classification was not scientific, simply because the naming of the divisions by numbers meant really nothing. Let us see—a science is something that is based upon three things, namely, systematic observation, experimentation, and reasoning, and in the light of this the thousands

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upon thousands of cases that have been successfully treated bear ample testimony of the value of the diagnostic scheme. As has been said, next to the law of occlusion, this scheme is our greatest asset. It is a bread winner.

The terminology that has been suggested for the Angle classification sounds well, but I think you will find the student in college will have even more trouble remembering the same than Class I, Class II and Class III.

The Lischer terminology is perfectly intelligible to me, and being of Latin origin would seem admirable, but, after all, it is the Angle classification in a new dress, with one slight addition.

The essayist says that after much experience in treating Class II cases in the 1st division, at the age of twelve and shortly after, he is unable to retain the same "in most cases." Gentlemen, I would not want to send my child to him. If he knows before he starts that he cannot retain the case he should not take the child's time and the parents' money. We are all willing to work for the really young, because of the absolute sureness of our results, but the essayist has made entirely too broad a statement in regard to older patients. Some of my own best work in this class of cases has been accomplished at this very age. The fact is, I am coming to the conclusion that it is not so much a question of age, as having the *hearty* co-operation of the patient.

What the essayist says about the impression that the removing of abnormal bodies will restore to the child normal breathing is all too true, and I find that rhinologists who know better do not even put forth an honest effort to give the child its due. When asked the reason why, what answer do you suppose was forthcoming? This was one: "Oh! I hate to tell them of the added expense, namely, the necessity of making the jaws normal in order that there might be normal lip function."

The essayist is "convinced that there is no change in the palate bones after extensive expansion." I hope to learn something at this meeting which will convince me just the other way, but I must have more than opinions and speculations. We have all the testimony in favor of a change in the palate bones, but circumstantial evidence does not convict in orthodontia.

Regarding the opening of the suture, the essayist says it is not done after a certain age. If he had been at the late National Association meeting in Cleveland he would have learned that a number of men are treating these very cases of Class II in that manner, and with the purpose of greatly shortening up the work. In this method of treatment the cuspid roots are carried out bodily.

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Just one word in regard to classification. It seems to me that before we make a comparison of these two classifications a complete understanding of them is necessary. Many men are endeavoring to use Angle's classification as a complete guide to diagnosis and complete indication of the treatment in a given case. It should not be so regarded at all. The classification applies to the models, and only makes up a unit of the complete diagnosis and the treatment of a case. That is misunderstood by a great many people, and I think that the men who are endeavoring to change the classification are endeavoring to supply a classification which will indicate a complete diagnosis and treatment for a given case.

In regard to the lowering of the hard palate and the expansion of the dental arches, I think the men are deceived. I agree with Dr. Feder-spiel that the hard palate is not lowered in its relation to the occlusal plane of the teeth. It is lowered in the proportional relation to the width of the arch, and there is a lowering of the hard palate in its relation to the other bones of the nose, of the nasal cavity, so that you get an enlarged breathing area by that growth, which is between the upper attachment of the superior ethmoid bone and the palate.

I hardly think Dr. Casto's explanation will be borne out by Dr. Angle's explanations of his classification in his publications. Certainly the great value of this classification is that it not only diagnoses the case, but indicates the treatment.

Two years ago I made a statement that while the classification did answer the purpose as far as diagnosis is concerned, that it was not a guide as to treatment. If Dr. Casto were speaking for Dr. Angle, and if the Alumni wish to admit this, that is to say the failure of the classification in regard to treatment—

Dr. Casto. I am not speaking for anyone on this subject.

Dr. Walker. I have reason to believe that Dr. Angle has reached that conclusion himself.

May I be permitted another word, inasmuch as my name has been introduced here very much against my wishes?

Dr. Eischer.

In regard to my terminology, I do not care what you call it. It is not at all based upon treatment, has nothing to do with treatment; but it is based upon pathology, and upon what else should diagnosis be based? Treatment is an after consideration. Now, I noticed in teaching this subject that the classification to which we have all been accustomed had its shortcomings. First of all, it is not sufficiently comprehensive. For

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instance, it says nothing in regard to an undeveloped mandible. Its terminology is not scientific; numbers are not applicable to pathological conditions, and before I had my own terminology I felt ashamed to talk with a rhinologist and speak of a Division 1, Class 2 case. So I have honestly tried to get terms for that purpose, and to me they have been satisfactory.

In answer to Dr. Lischer's statement—"How
Dr. Federspiel. are we to differentiate between malformation and malposition of the mandible?" I will say that unless one thoroughly understands the anatomy of the face and head, together with the different landmarks, it is impossible to recognize the difference between a normal and an abnormal case. In order to recognize malformations and malpositions of the teeth, arches, jaws and face, one must be familiar with their embryological and anatomical development. Some orthodontists still believe that the upper first molars can always be used as a guide in making a diagnosis of an arch malrelation. Though it has been proven time and again that its position is not always normal, yet it plays an important part as an aid in diagnosing. I consider the lower first molars equally, if not more, important as an aid in diagnosing. But we must not forget that the position of the mental foramen, Stensen's duct, the mental tuberosity, the upper and lower frenum, the shape of the mandible, the inequality of muscular action, the condition of the nasal channels, the age of the patient, rickets, heredity, and so on, must be considered in making a diagnosis.

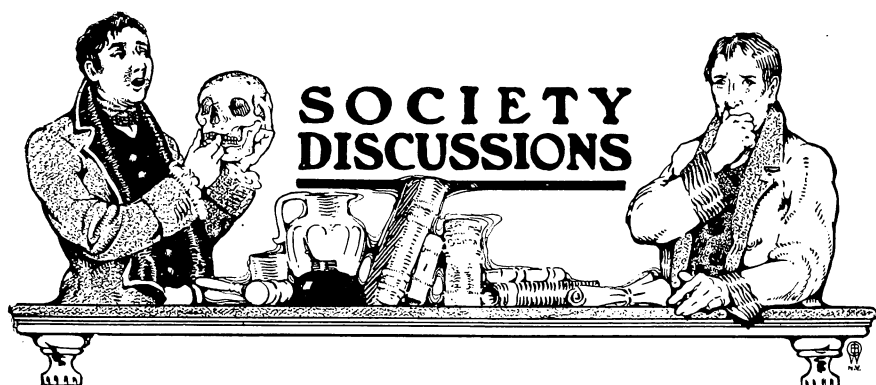
I am amazed that my friend, Dr. Flint, can pay the Angle classification no higher compliment than to say "It is a bread winner," but I fear that the Doctor is not well informed along embryological and anatomical development, together with the prognosis of extreme dento-facial deformities. Careful study of my paper with the report of cases substantiates the fact that our present method of diagnosing, wherein the occlusal inclined planes alone guide us, is not sufficiently comprehensive for the specialist who desires to correct deformities which extend beyond the confines of abnormal positions of the inclined planes. I am not questioning the classification laid down by Doctor Angle; it deserves all the credit we can give it, but it has its limitations, and is very much in need of a better terminology. Students who have a knowledge of Latin prefer names that have a meaning. Suppose you examine a patient's heart and discover that there is an inflammation of the pericardium, and you diagnose the case as heart disease, Class 2, Division 1; it means nothing; but if you say the patient is suffering from pericarditis, you have made a definite statement. Again, suppose the patient has an inflammation of the pulp of a tooth, it would not be well for us to say toothache No. 7; but if we say pulpitis, the term means something. It seems to me that

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the time is ripe for a body of professional men to discuss diseases and deformities by names which can be analyzed instead of being coined to suit the taste of an individual.

Now about distal malposition of the mandible. Again, Dr. Flint fails to differentiate between distal malposition of the mandible and a dist-occlusion of the lower arch. A knowledge of the embryological and anatomical development of the temporo-mandibular articulation has satisfied me that after the developmental period it is very difficult to permanently retain a distal malposition of the mandible in a normal position in order to establish neutroclusion and harmonious facial lines. It is well for me to state that the mesial shifting of the lower arch in the jaw in cases where the lower jaw is distal to normal, so as to obtain normal occlusion, is pseudo-orthodontia.





Second District Dental Society. November Meeting.

A regular meeting of the Second District Dental Society of the State of New York was held on Monday evening, November 13, 1911, at the Kings County Medical Library Building, 1313 Bedford Avenue, Brooklyn, N. Y.

The President, Dr. E. H. Babcock, occupied the chair and called the meeting to order.

The minutes of the last regular meeting were read by the Secretary, and approved. The paper of the evening was read by Dr. Charles C. Voelker, his subject being: "The Scope of Prophylaxis in Dentistry."*

*Dr. Voelker's paper appeared in the March issue.

Discussion of Dr. Voelker's Paper.

Dr. Voelker is to be commended for the high position which he takes regarding the duty of the dentist toward his patient, and it is none too high. The keynote of medical science to-day is prevention, and it is this ideal toward which the dental profession must strive if it ever hopes to find a solution of the problem involved in the deplorable condition which at present prevails in the mouths of more than fifty million of people in these United States. If conditions such as these affected only the health and comfort of the mouth, as so many seem to believe, it might be ignored. But we know that this is not true.

The statement publicly made by Major Owen, of the United States Army, is, in my opinion, no exaggeration. He says that:

"Proper care of the mouth and teeth is one of the most important of all the measures that are taken for the protection of the human body, and a failure to give them care is, in my judgment, the direct cause of more disease in the human family than any other single cause."

I shall make no attempt to discuss in detail Dr. Voelker's paper, but will touch upon a few things only, out of my experience.

**Vaccine
Therapy.**

First, a word about vaccine therapy. Much that has appeared in our literature in the past few years relative to the use of vaccines in the treatment of pyorrhea alveolaris, has been written by men more or less unacquainted with the disease, and with no clinical experience in its treatment. The result is, that when they come to record their observations they have, because of their clinical inexperience, given reports which are, to a certain extent, misleading.

As every one knows, vaccine therapy depends for its success upon the stimulation of nature's protective forces against the germ, or germs, responsible for that particular disease, and since the organisms associated with pyorrhea alveolaris are complicating rather than causative agents, it can never, independent of other treatment, prove of great value. I say this here because of certain rather glowing accounts which have appeared in our literature regarding its use, and because of a disposition on the part of some to overestimate its value. For the past three years I have made a considerable use of vaccines in the treatment of those cases of pyorrhea where a general toxemia had developed through the absorption of pus, and with excellent results. I have had cases in which all the subjective symptoms cleared up under the use of vaccines, without any local treatment whatever. But in such cases there was little visible improvement in the local conditions, and a cure would have been impossible without proper local treatment.

In such cases I believe that vaccines are of decided value, though I doubt whether they will ever come into general favor, because of the elaborate technique involved in their use. As a prophylaxis in the treatment of pyorrhea, they cannot in the nature of things be of any value, and I do not believe that they will ever be made use of in this connection.

Dietetics.

That dietetics play an important part in susceptibility and immunity to dental caries is probable. It is unfortunate that so little of an exact nature is known of this relation, for I believe that it has a very important place in the prevention of this disease. While I agree with the author that the phrase, "Clean teeth do not decay" is an excellent ideal to set before children, I am sure he will agree with me when I say that dental caries is not

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altogether a question of cleanliness or uncleanness of the mouth. As to the possible effects of dietetics in the prevention of caries, perhaps I can do no better than relate my experience in the dental clinics of the Children's Aid Society.

Since the opening of the 53d Street clinic in 1907, every one who had to do with the work in that school has been impressed with the deplorable dental conditions which prevail among these children. By actual figures, based upon the examination of several hundred of them, 97 per cent. were found to have decayed teeth. And these figures tell but half the story. Their mouths, which were filthy in the extreme, seemed to be full of decayed teeth, with exposed pulps and non-vital teeth the rule. Mal-occlusion was well nigh universal. The children, most of whom were of Irish-American parentage, were poorly nourished and undersized. Inquiry as to their diet, from those familiar with the lives and homes of these children, brought out the following facts: The chief article of diet, I was told, was "buns and tea." This bun is a half baked lump of dough, with sugar in the center. The tea, kept brewing night and day until it is the color of coffee, is usually drank without milk or sugar. Cheap stews, and occasionally meat, form the only variety to this diet.

With the opening of the clinic in the Five Points Industrial School, in 1909, where all the children (about 600) are Italians, I was struck with the marked contrast in their dental condition. Though these children were as ignorant of the toothbrush and its uses as were their Irish-American neighbors, and represented the same social grade, the condition of their mouths was quite different. About 90 per cent. showed the presence of caries, but such teeth were relatively less in number, broken down and badly decayed teeth were the exception, normal occlusion was the rule, and their mouths were, on the whole, cleaner. They were also better nourished in appearance. From the school principal (an Italian woman) I learned that the food most frequently eaten is "*Minestra*." This is a sort of thick soup or stew made of salt pork, and such vegetables as cabbage, spinach, scarola, beans, macaroni, etc.

They also eat a large quantity of "*Polenta*" (boiled cornmeal), which is eaten with milk or tomato sauce.

Another favorite dish is "*Pasta con faginoli*, made principally of beans and macaroni. Very little meat is eaten, and sugar has little or no place in the diet of an Italian child. Obviously this is a more sensible diet than that which prevails among the children of the 53d Street school, as is shown by the better physical condition of these children, including their teeth. That it is the only factor in the improved condition of their teeth I do not assert, but I do believe it is one of the forces making for this improvement. I cite this experience here to emphasize what Dr.

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Voelker has said, that dietetics have a place in the prevention of mouth diseases, and should receive more careful study by the dental practitioner.

Education. I do not agree with him that the present dental educational facilities are adequate to fit the dental practitioner to measure up to the high standard which

he himself has set before us. There is no specialty of medicine which requires for its successful practice a broader foundation than does that of dentistry, nor is there a single specialty in the whole realm of medicine requiring a technique one-half so difficult to acquire. The successful dentist must be one grounded in all the fundamentals of general medicine; he must be a surgeon qualified to meet any emergency which may arise within his specialty, and he must also be a craftsman of a high order, able not only to devise what must be done to meet the requirements of each case, but to execute with his own hands the devices which his experience dictates. To expect a man to meet all these qualifications in a course extending over three years, is to expect the impossible. It has never been done, and never will be done, and this is no criticism of our dental schools. Many of them are doing excellent work, and all that can reasonably be expected of them in the limited time at their disposal.

What is needed is a few schools with greatly enlarged facilities and longer courses—schools not dependent upon their patronage for support—where men can obtain the educational training which shall qualify them to meet the increasing requirements of modern dental practice.

Such schools would attract the best men entering the profession, and the superior qualifications of these would, in time, force these higher standards upon an increasing number of those entering the profession.

Churston H. Dexter, M.D. The subjects in this paper, with which I am familiar, have been so clearly outlined by the writer that I shall endeavor to avoid further definition. To go deeply into the matter of vaccines and serum treat-

ment, opsonins, anaphylaxis, and the parts played by the ductless and certain other glands in Sajous's adrenal system would be either exhausting or abortive. I think I may best fill the brief time in which I am expected to hold your attention by showing you some of the sign-posts of these phenomena that are assuming such importance:

Value of Vaccines. You are all familiar with the wonderful results obtained in the United States Army by the use of injections of a typhoid bacillus vaccine as a preventative measure. The absence of typhoid among the

soldiers recently guarding our Mexican frontier is the most recent and indubitable proof of the efficacy of this strong arm of prophylaxis. Under careful supervision many hospitals are now proving the therapeutic

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value of this same agent in the treatment or cure of typhoid fever. Of the value of vaccines in pyorrhea alveolaris I am not prepared to speak; but in the treatment of boils they are practically a specific, and they are of almost equal potency in many other and more serious diseases. The dose must be carefully estimated, preferably by the clinical picture of the case. An overdose will produce an unfavorable or negative phase, usually evidenced by an accentuation of the unfavorable symptoms; though if the dose be not too large this will be followed in about 48 hours by improvement—the “positive phase.” It is the rule of some to give a dose just sufficient to excite a transient negative phase. With others it is the rule to give a dose just short of this. This negative phase is not anaphylaxis, and it has not been my personal experience to see one or two injections sensitize the subject to smaller injections of the same vaccine, though it seems to me that this must sometimes happen, though certainly less often and less strikingly than in the use of antitoxic and antibacterial sera.

It is not unusual to see marked evidence of anaphylaxis in the administration of antitoxine serum, perhaps most frequently manifested by intense local reaction at the site of injection, and a general crop of hives, with great itching, and accompanied by a rise of temperature. Persons subject to that form of respiratory irritation known as “horse fever” are especially susceptible to anaphylactic reactions from sera (as antitoxine sera) prepared from the horse. This fact considered, with the similar respiratory irritation produced by hay and pollen, and coupled also with the example of vegetable anaphylaxis noted in the paper of the evening, opens a wide field for speculation and for work.

The way anaphylaxis usually works out is that an injection of a given strength so sensitizes the subject that he reacts markedly and unfavorably to minute subsequent injections of the same substance, even though there was no appreciable reaction to the primary injection. Sometimes, however, a first injection produces anaphylaxis; due possibly to some previous and unknown sensitizing process. Such a case, that has been under my observation, may be of interest:

About two years ago, Dr. M——, having a severe diphtheretic infection, an initial injection of 15,000 units of antitoxine was given, and two or three days later a second dose of 10,000 units. Two or three weeks after the second injection he developed a severe and very distressing general urticaria, lasting five or six days.

About three months ago this same physician, while taking care of a tetanus case, received as a prophylactic precaution 3,000 units of anti-tetanus serum. Within two hours he was seized with violent, truly agon-

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izing abdominal cramps; the bowels and bladder emptied frequently, and chill after chill followed. He was forced to crouching attitudes on the floor, or unusual ones in the bed, to obtain partial relief from the pain. For two or three days following there was a gradual and moderate rise of temperature; and drenching sweats and great prostration, the abdominal cramps and soreness of abdominal muscles slowly improving after the first 24 hours. Two days after the serum was administered the patient broke out in a general urticaria, especially severe at, and near, the site of the injection. Recovery was gradual and completed in about one week to ten days.

Sajous's adrenal system is so vast a subject that I feel like taking off my hat to it and saying nothing. The manifold known and still unfathomed functions of the ductless glands offer a tempting field for speculation. We know that the suprarenals have a powerful effect on circulation, and play an important part in the skin-marring and fatal Addison's disease. Various preparations of the thyroid gland have not only affected the course of exophthalmic goiter, but also certain urticarias and other skin affections; and have given some evidence of influence over generative organs. Ovarian extracts have been used not only to avoid a post-operative artificial menopause, with its uncomfortable sequellæ, but it has been my good fortune to see brilliant results in the cure of eczemas occurring at the "change of life." It has always been a matter of speculation, in my mind, whether an agent so powerful in its action on the female, would be absolutely inert if administered to the male. The influence of the pituitary gland, nested at the base of the brain, over bone nutriment, is most important to your profession, and the attested efficacy of pituitary extract in atrophic and other forms of osteitis bids for your earnest consideration.

It may seem to you gentlemen that orthodontic operations play only a minor rôle in the field of prophylaxis, but if you will give due consideration to the fact that the establishment of normal occlusion of the teeth is absolutely essential to the perfect performance of all other prophylactic measures, as well as to the proper and normal functioning not only of the dental organs themselves, but of the nasal cavities and their accessory sinuses, it will be seen that the very foundation of all prophylaxis must begin with the normal development of the teeth in their right relations to each other and to the adjacent structures.

Even though the position of the teeth had no effect on the difficulty of maintaining hygienic conditions in the oval cavity, the investigation of some of our most able rhinologists shows us how important to the development of the nasal cavities, and particularly the maxillary sinuses, it



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is that the teeth take their correct positions, and assist in and accompany their development, for certain it is that if we are to accept the broad definition of the essayist we must consider the development of full, free, normal breathing in the growing child, prophylaxis of the greatest importance, because such development gives to the individual greater vitality and resistance to disease all through life.

In this connection I would like to say that the folly of postponing orthodontic treatment until all of the deciduous teeth have been lost, has been so positively demonstrated, and information regarding the advantage of early treatment so thoroughly disseminated even among the laity, that the time is rapidly passing when the dentist can escape responsibility for advising delay of treatment.

It is much easier for the patient, as well as the operator, to bring about normal development of the teeth and maxillary bones during the period when the rest of the body is making its most rapid growth, and the child's objection to the appearance of the appliance is much less during that period. It also seems to me that there is a very decided advantage to be derived from attaching your appliance as much as possible to the deciduous teeth, and using them as a base to so direct your forces as to guide the permanent teeth into their normal positions. This treatment is ideal, not only because it brings about the normal development of the child at the right time, but because it also, to a very large extent, does away with the danger to the permanent teeth from the neglect of the patient to keep the appliance clean during the period of treatment.

In orthodontia the rapid advancement which has been, and is now being made, both in regard to the new scientific investigations and the constantly improving methods of treatment, furnish abundant opportunity for all the energies of those who are giving all their time and thought to this specialty, and naturally enough, under the circumstances, it seems to us that no man can do justice to orthodontic cases and carry on a general practice.

However, if you have the time to keep up with the progress of orthodontia, and have had the preparation and the experience necessary to properly care for these cases yourself, there is no reason why you should not do so.

As I see the field of orthodontia in Brooklyn to-day, there are more orthodontic operations needed than could be attended to by twenty-five orthodontists, if these cases were receiving the attention which they deserve.

The question as it is related to the oral hygiene
President Babcock. crusade, and its sociological and economic phases, will be discussed by Dr. Thaddeus P. Hyatt.

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It certainly is a great pleasure to feel that we **Dr. Chaddess P. Hyatt.** can so unqualifiedly commend and congratulate the essayist upon a paper that treats this subject in such a broad and inclusive a manner. It would be hard to find any part or any phase of this subject that has not received sincere and conscientious consideration by Dr. Voelker. Such a comprehensive survey can only come from a large and careful research in the archives of dental and medical literature, and I doubt if many can comprehend the tremendous amount of work involved, unless they have done something of a like nature.

To me has been given the consideration of the relation of prophylaxis to the oral hygiene crusade, and the sociological and economic conditions of to-day.

I shall make no attempt to go deeply into this aspect of the subject, but only offer suggestions for your consideration, and trust that the contemplation of them may arouse in one and all a deeper realization of the responsibilities resting upon each of us individually and all of us collectively.

Oral Hygiene Crusade.

First let us consider the oral hygiene crusade. The importance of this campaign is not entirely covered by teaching the laity the importance of clean teeth and clean mouths, how to keep them clean, and also how intimate is the relation existing between the condition of the mouth and its contents, with the health of the whole body; but also to raise the standard of the art and science of dentistry in the estimation of all mankind, particularly among philanthropists, educators, scientists and the medical profession. This campaign has already had a beneficial influence upon the whole of the dental profession.

I am greatly pleased that the essayist approves of the use of our motto, "A CLEAN TOOTH NEVER DECAYS." I, for one, take the stand, that until it has been proved that the teeth still decay in mouths that have been kept scientifically clean for many years, that is, absolutely clean without any question of a doubt, that it is both proper and just to publicly teach that "A Clean Tooth Never Decays." It is of no use to go before the public in a half-hearted or doubting manner. You must be positive and hopeful, and feel within yourself that you are telling the truth, and all the truth, so far as the truth is known to us this day. In the days gone by when the doctors bled their patients, it would have been a poor physician who did this with any doubt, or hesitation. He believed in it, and in those days it was the best they knew, and constituted the truth, and all the truth, so far as it was then known. So we to-day, with confidence and true conviction, can teach the public that clean teeth do

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not decay, knowing positively that no one has as yet proved conclusively that we are wrong.

Distant Ills Traced to the Teeth.

It is to be regretted that all of you were not present last Monday night at the meeting of the First District Society to hear the paper by Dr. Upson, and the discussion that followed. Suffice it to say that there could hardly have been any one present but went away with a better realization of the importance of the condition of the mouth and teeth to the mental and moral welfare of the person. Cases were cited showing that thieving, lying, carelessness in study, disobedience, irritation to rules and order, were in many cases associated with, if not caused by, dental lesions. We all know that reflex action will cause the manifestation of pain in some tooth other than the one decayed, but none of us can tell the why nor the wherefore, nor the limits of this reflex action. I have no hesitation in believing, and in stating, that many diseased and warped mental and moral natures are brought about by dental neglect, and I think we have logical grounds for this belief.

One case was cited last Monday by a physician from Philadelphia, where a patient had pain and trouble in one leg. The doctor could find no apparent cause in the leg for this pain, but did find that the teeth badly needed attention. When the teeth were attended to the pain left the leg. Before we discard this as foolishness, let us realize that there is no such thing as chance. All effects must have their causes. They cannot arise from nothing. As we do not know the limits of reflex nerve irritation, who can prove that the irritation set up at the dental periphery was not reflexed to another part of the body, and in this case the leg? This should only teach us the oneness of the body, a fact we are constantly overlooking.

Influence of Poor Teeth on Children.

In Germany they find that children who receive dental treatment are greatly improved bodily and mentally, and that they make better progress in their studies. Their behavior, and obedience in class, also showed a change for the better. Had these dental conditions been allowed to remain, these continuous reflexed nerve irritations would have finally resulted in permanent unbalanced or abnormal moral and mental states. Add to this that the child would be constantly punished, called bad, stupid, and though feeling the injustice done, would not be able to prove their innocence. Finally, being discouraged at the failure of all their efforts, for every human at the beginning desires to be good, and right, they give up and become active and positive in evil activities. In this way does the criminal class gain a large portion of their recruits.

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Not only is the moral and mental condition of the individual jeopardized, but his ability for earning his livelihood is impaired. To say the earning capacity of a man is related to the condition of his mouth, may seem an exaggeration, but let us for a moment consider the idea a little more fully.

1st—Broken-down teeth, preventing thorough mastication, leads to malnutrition, intestinal fermentation, and putrefaction.

2d—Decayed bone, being an irritant and a poison, the presence of decayed teeth in the mouth is a source of constant and continuous systemic poisoning.

3d—The nerve peripheral irritation set up by decayed teeth are reflected somewhere, and thus become causes for further nerve disturbances.

4th—Nerve peripheral irritations set up in the stomach by the presence of decayed bone poison are also reflected elsewhere, and become causes for further nerve disturbances.

5th—Nerve peripheral irritations, set up in the intestinal tract by fermentation and putrefaction, are reflected elsewhere, becoming causes for more nerve disturbances.

6th—The poison absorbed into the system from fermentation and putration in the intestinal tract brings about further disturbances.

When we realize the full significance of this, when the general public, and moulders of public opinion realize this, then there will be strong and urgent agitation for something to be done. Is the dental profession ready to respond to that demand? I believe we are now commencing to realize our responsibilities, and are making sincere efforts to prepare ourselves to meet every requirement.

Another aspect of the economic side of this question is shown by the fact that it has been proved, without the possibility of any doubt or question, that over 98 per cent. of the children who are kept back, that is, who do not pass their examinations, are physically defective, and the cost to this city alone is over 4½ millions of dollars a year. Figures were given at the public meeting at the Academy of Music last year that were astonishing, and showed that the dental condition of our school children is one of the most important questions for consideration.

When we stop to consider the tremendous amount of dental work needed in our city alone, and the absolute physical impossibility of doing it all, we feel at first a sense of hopelessness at making any efforts of any kind. But the situation is not so bad as it seems. The question is to find a good way to start. Once a start is made we will soon learn better methods to follow. Undoubtedly the most important is the giving of lectures and exhibits. By lectures you can teach hundreds in one hour to

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start doing something for themselves. Exhibits also give opportunities for individual talks and answers to questions asked.

Dental Nurses Needed.

Dispensaries are necessary, but cannot be made of great practical value until we can secure the aid and services of a corps of assistants, who shall have received proper training in our dental colleges or special institutions, that shall qualify them to cleanse the teeth properly and thoroughly. These skilled and trained assistants shall be confined to this work alone. They shall not have charge of dispensary or treat pathological conditions, but must be able to recognize them. How can I devote one hour or more to one child, cleaning his teeth, when in the next room are ten or fifteen patients with swollen faces, aching teeth or exposed pulps? Much less can I give the time to polishing the teeth, a most necessary and important part of cleaning teeth. And to show that this is not confined to me alone, let me say that I have yet to find the teeth of any of the children coming to our dispensary that are, or have been, properly cleaned. In the present condition we must first relieve pain. Let those who have acquired the knowledge and skill to treat pathological conditions treat them; let those who are skilled in filling and all other dental surgery do this work. Where pockets in gums exist, doctors should attend to them. But for the ordinary cleaning, and polishing, and teaching children how to use the brush and floss silk, let us secure the aid of trained assistants, call them what you will. But pray, remember that in advocating this, I also advocate as necessary, the passing of proper laws for the regulating of the required studies, work, time, examination, and granting of diplomas, and should prefer that this might be acquired at our regular dental colleges.

Our work is noble and important, the need of mankind for our services is great; our opportunity is present; in responding let us be united and generous, working to give the most we can, without bickering or jealousy, nor so dogmatic as to be blind to the possibility of blending many seeming different and opposite ideas. Then shall we be able to present a harmonious working plan, that will raise our beloved profession to the highest rank throughout the world.

Mr. Chairman, I wish to congratulate the essayist on the paper which he has presented this evening, and if he has ever lived up to a certain name, which we used to call him in college, he has certainly lived up to it to-night. We called him "Hercules," and he has shown Herculean powers by compiling a paper of this kind.

It appears to be a tremendous thing to be a dentist, according to the rules laid down in that paper. If we consider it carefully, and consider

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the trend of the dental profession, and the trend of science in general, we will see in what manner they are bearing.

We are studying all kinds of diseases, and we are so absorbed in the study of them that we entirely forget the normal. We had an illustration of this fact only last summer. For instance, at the Angle School of Orthodontia one hundred and fifty applications were received, and of that only twenty-two students were admitted. They were all dentists who had been practising some ten or fifteen years, and of the twenty-two there was not one who thoroughly understood normal occlusion, and yet this is a most important factor in dental operations. There is not a single operation that dentists can undertake without a perfect knowledge of normal occlusion.

Dr. Voelker: In all writings and discussions on this subject of the treatment of pyorrhea alveolaris by means of bacterial vaccines, you will note that those who are most enthusiastic regarding it will tell you that local treatment is also indispensable—that we must do the surgical work well in order to get results. A very important fact to remember is that we must not lose sight of the fundamental law governing all bacteriology, namely, Koch's Law of Postulates. We have not the right bacterium to use for the production of immunity to pyorrhea by vaccines, unless that same bacterium will produce the disease in accordance with that law. This has not yet been done in pyorrhea, and it probably never will be. It has been done with typhoid fever, and this probably accounts for the success of immunization by typhoid vaccines. All we can hope to do in pyorrhea is to raise the natural resistive powers of the patient. Miller found six different bacteria in pyorrhea. Hence, we would have to make use of an anti-toxin or a vaccine which would include all of these bacteria in order to be sure of getting the particular one that is the cause of the trouble. We must make a mixed vaccine from all the different bacteria found in the pus pockets. Such a vaccine would probably have some beneficial effect by increasing the production of antibodies. Yet I have seen a case in which, after some sixty injections, the conditions were not improved. In most other diseases treated by vaccines we have one or two specific organisms. In pyorrhea we are dealing with at least half a dozen or more. One investigator has separated twenty-six different organisms from the human mouth.

In regard to the subject of anaphylaxis, I admit that there are perhaps very few cases of this phenomenon in the large number treated in the United States Army; but the men taken into the army are fine physical specimens, and would naturally not be of the class of people who come to us for treatment for pyorrhea alveolaris. In our private practices

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we find people who are subject to various kinds of neurotic diseases; and it is the twenty per cent. that are subject to the danger of anaphylaxis that we, as dentists, are apt to be called upon to treat. Hence, we must take care that we know all the pathological factors connected with each case before we take up vaccine therapy and apply it in a practical way.

Potassium Sulfocyanate in Saliva.

I have read a great deal of the literature on the subject of potassium sulfocyanate in the saliva. Although Treviranus noted it in 1814, and Gmelin and Tiedemann are said to have proved its presence a few years later, up to date we do not know whether potassium sulfocyanate has any particular action on dental conditions or not—whether it has any particular inhibitory effect on dental caries. It is rather interesting to note the tests that have been given for the detection of potassium sulfocyanate, by the research committees of the New York State Dental Society and the National Dental Association. We are told to take two tubes and put into one a 1:2000 solution of sulfocyanate and into the other a sample of the saliva to be tested; then to put into both tubes two drops of a weak solution of ferric chloride, and to add water until the colors in both tubes match. Then to read the scale in thousandths and ten-thousandths, being sure that the bottom of the meniscus is on the line. As if one ten-thousandth of one per cent. of sulfocyanate could affect the result one way or another! Our sulfocyanate experts do not go the logical step further, which science and good chemistry would demand, and tell us how we can prove, beyond the shadow of a doubt, that the color produced in the tube which contains the saliva is caused by potassium sulfocyanate and not by several other things (almost a dozen, if my memory serves me right), which a little more study and investigation would show them may exist in the saliva and give the same reaction with ferric chloride. I wish you might all read the current number of the *Dental Cosmos*, which contains an editorial that goes into this subject quite fully. The writer takes up the matter of the New York State Dental Society researches in a most delightful and convincing manner.

In regard to pyorrhea being seen in the mouths of children of seventeen and eighteen years of age, I thoroughly agree with Dr. Lewis. I have had a case of well-developed pyorrhea due to malocclusion, in a boy seventeen years old, whom I sent to one of our prominent orthodontists for regulation of his teeth. He had pus pockets around the lower incisor teeth and around some of the molar teeth, typical of pyorrhea just as we see it in adults.

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Dentists for Dental Clinics.

In regard to this question of why we do not have enough dentists for our dental clinics, and why so many people are without dental care, it is simply due to one thing: there are not enough dentists to go around. Polk's Dental Directory shows that there are less than forty thousand dentists in the United States. Let us grant that each is a busy, ambitious man, who works ten hours a day. He takes no vacations, does not bother with luncheons, and so manages to put in three thousand hours a year at the chair. He would be able, if he worked as hard as that, to see about a thousand patients a year, giving an average of three hours to each. Forty thousand dentists could thus attend to forty million patients. The population of the United States being ninety-two millions, that leaves fifty-two million people without any dental attention at all. Actually, I believe, not more than fifteen to twenty million people are served by the dentists of this country each year. There is room for as many dentists as there are physicians, or about one hundred and forty thousand.

The Trained Dental Nurse.

Now, in regard to the so-called "trained dental nurse." Some men ride a hobby to death. It seems strange to me that the very men who have bewailed the divorce that occurred between medicine and dentistry, the separation that occurred between the mother and her legitimate offspring, now wish to engender on that child, grown to maturity, an illegitimate hybrid, which may some day give us a great deal of trouble. They want us to train young women to do the work which we, by law, are supposed to do, in scaling and cleaning the teeth and applying medicaments to them and their adnexa. When we scale the teeth and when we treat pyorrhea, we act as dental surgeons, and these are departments of our work which require our most exacting care and a mechanical or surgical finger technic only to be acquired by years of arduous practice. I am acquainted with many members of the nursing profession in various parts of this country, and I know, from talking with them regarding this dental nurse or denticure question, that there is absolutely no analogy between the work of the trained and registered medical nurse and these "tooth-polishers," which some members of the dental profession have in mind to become the assistants of the dental profession. The trained nurse stands by the surgeon and hands him his instruments, which have been previously sterilized by her; but she never does any of the actual work of surgery; she never uses the knife. She goes into the homes of the people to represent the physician in his absence and minister to the physical needs of the patient while helpless. I have been scaling and polishing teeth as a routine part of my practice for the last nine years,



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and I do this work to-day, I truly believe, better than I did a year ago, and I hope that a year hence I will be doing it better than I do now. Perfection in this work only comes, as Dr. Hutchinson tells us, after long years of constant practice. I do not see how it is possible to train young women in a year or two to do the work which it is admitted on all sides is not done as it should be done by more than a small part of the profession. I feel that before allowing this thing to be carried further, before legalizing the employment of cheaper assistants in our offices, we should, as a profession, first learn how to do this work ourselves before we pretend to teach young women without preliminary education to do it for us. I trust that the sober-minded amongst the profession in this State will fight any attempt to legislate into being this pseudo-dentist, the so-called trained dental nurse, or denticure.

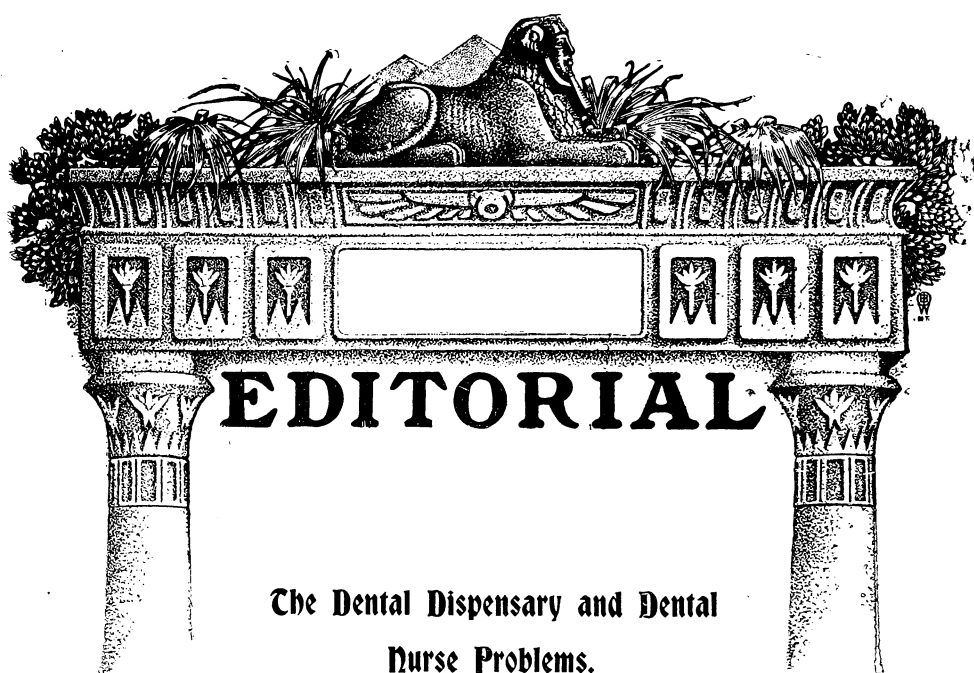
Regarding the sociological aspect of prophylaxis, permit me before closing to quote from Musser's new work on "Practical Treatment": "Prophylaxis is interwoven with the science of sociology. It concerns itself with promoting normal, wholesome methods of living, both physical and moral, and with all measures that may in any way promote health and well-being. In a broad sense prophylaxis deals with both the intrinsic and extrinsic factors of disease. It is not a field belonging exclusively to the medical profession; it requires the services of the engineer, the law-maker, the sociologist and the educated class in general."

Dr. Voelker, in his quotations, speaks of the
President Babcock. broad use and limited use of the word "Prophylaxis."

In 1889 a member of the senior class of the New York College of Dentistry came before Professor Abbott for examination, and one of the questions was what he understood by prophylaxis. The student replied that it was the treatment for the preservation of health, or the restoration of health, not only by medicine or drugs, but by any other means that can be used, whether general hygiene or what not. That statement was accepted by the professor, and I merely mention the fact to show that as many years ago as that, that was the line of thought that was being taught by the New York College of Dentistry.

A cordial vote of thanks was extended to the essayist and the gentlemen who discussed the paper.

Adjournment.



Now that the oral hygiene movement has reached such dimensions that it is being urged in some form in every State in the Union, it might be well for the leaders of the profession to pause and give serious study to the economic problems involved. In the creation of public dental dispensaries, and in the demand that the dentist should have the aid of trained dental nurses, we are but setting foot in a path long trodden by the medical profession. Why should we walk blindfolded to the edges of possible abysses, or risk the chance of wandering into by-roads that lead to swampy wildernesses, when perhaps, by communing with our medical brethren we might keep in the safe highway, and avoid many of the pitfalls and stumbling places that have maimed and lamed the members of our mother profession?

Platform orators are shouting loudly, in stentorian rhetoric, of the advantages that will accrue to the community from the possession of "Clean teeth that never decay," and between lectures these same men whisper to eagerly listening practitioners of the emoluments that will reach the dentists by cleaning the teeth of the aroused community, and of filling those that decay in spite of said cleaning.

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The proposed solution of this problem appeals both to our professional pride, and to our personal profit, the more especially because it is all to be done in the noble name of Charity. Standing shoulder to shoulder with our medical brothers, at last we are to do our share in caring for the poor (thus saith the public lecturer), the while, of course, benefiting by the advertisement of the fact that oral hygiene is the very cornerstone of the edifice of sound health (thus runneth the private argument of dentist to dentist).

But is it all so simple as this would sound? Is it true that we have but to inspect the teeth of the children in the public schools, establish and conduct dental dispensaries, and deliver courses of lectures on oral hygiene, in order thus easily to arrive at that millenium that is to be so beneficial to the community, to the dentists, and (whisper it softly) to dental goods dealers? Would it not be well to investigate the experiences which medical men have had with dispensary and hospital charity?

In the *New York State Journal of Medicine* for March, 1912 (p. 107-112), Dr. A. T. Barstow contributes an article which should be read by all that are interesting themselves in our oral hygiene movement. In this exceedingly well written paper he points out just a few of the pitfalls that have beset the way of medical men; (a) in legalizing medical practice by statute; (b) in legalizing the practices of pseudo-charlatans, who heal without medicine, etc.; (c) in the abuse of dispensary charity; (d) in the overtraining and misuse of the trained medical nurse; (e) and in connection with the secret division of fees. All of these topics are as important to the dentist as to the medical man, but we can here only allude to two phases of the question.

The Abuse of Dispensary Charity.

Dr. Barstow, with an intimate knowledge of the abuse of existing medical charities, considers the establishment of dispensaries for the care of public school children as a menace to the medical profession.

He says:

"The Department of Health is threatening the welfare of the medical profession from another quarter, when it proposes to establish free dispensaries for the treatment of school children for such diseases as adenoids, enlarged tonsils, defective teeth, diseases of hearing, etc., *unless* it applies to the patients of such dispensaries the rules of the State Depart-



ment of Charities which are designed to exclude from the benefits of free treatment those who are able to pay. It is just such abuses of public charity which are rapidly bringing about intolerable conditions in the medical profession. When we consider the fact that preventive medicine has almost annihilated many diseases, and that the constant effort of the profession is in the direction of further curtailing the inroads of disease, we recognize the aptness of an illustration by a recent writer who compared the doctor to a man who was sitting on a branch of a tree which he was busily engaged in sawing off close to the trunk."

In the discussion that followed the reading of Dr. Barstow's paper, Dr. Egbert LeFevre thus expressed himself in regard to medical charity:

"In large cities intimate acquaintance with the circumstances of the people who seek medical advice cannot be expected of the general practitioner, and therefore there has grown up dispensaries to meet the needs of the very poor. If it stopped there, there would be no dispensary abuse, because I do not think that any man in the medical profession begrudges the medical service given to the poor, but the public have been educated to the fact that medical service can be obtained free, and therefore they have taken counsel of their prudence and sought what they consider efficient medical treatment in the dispensaries and hospitals. The managers of the dispensaries and hospitals have catered to this feeling, and, by charging a small amount, as ten cents for a prescription, *have made those who are fully able to pay their physicians feel that they are meeting their financial obligations by paying this small amount.* This is absolutely wrong, and I do not think that the dispensary trustees or doctors who are practicing in the dispensaries are using their best efforts to weed out the unworthy. But who are the unworthy? That is a most difficult question. Frequently those who come to the dispensaries well dressed and seemingly in good circumstances are those who are really in the greatest need of free medical attendance. Their work in stores and offices demands that they dress decently. The large increase in the cost of living without a corresponding increase in salary, has made the problem of living in the city very difficult, and whenever sickness occurs it is a calamity. Many of those whose ailments demand protracted treatment are advised to go to the dispensary by their physicians, who feel that they are unable to give the special kind of treatment demanded, and who know that the patients cannot pay for it elsewhere. *Unfortunately, not only are these patients put in the way of free medical treatment, but they spread the information broadcast, and those who are able to pay, go to the dispensaries also.* It is not right to put upon the physicians practicing in the dispensaries the work of sorting out the unworthy. It puts them in a

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false position, and many feel that they would rather treat nine unworthy cases than add to the hardships of one deserving applicant."

The italics in the last quotation are introduced to attract special attention to words that should act as a warning to those philanthropic gentlemen throughout the country, who are urging the establishment of dental dispensaries. It is not the object of this editorial to discourage the dental clinic idea. With Dr. LeFevre, every true-minded dental practitioner can say that no one of us would begrudge the assistance tendered to the truly needy. But in many parts of the country, lacking municipal support, and having no endowment with which to defray the expense, men are nevertheless starting dental clinics, charging small fees, and some even boasting that in this manner the clinic may be made "self-supporting," while the small fee avoids the "pauperizing of the masses." Those who argue thus have but to study conditions as they are, and as they are evidently known to Drs. Barstow and LeFevre, to discover that the only safe charity is that which is rendered absolutely without charge, and the writer has been informed that there are even men so low that they will seek free medical attention for themselves and their families, if they can thus save the dollar per visit that they can well afford to pay a regular practitioner.

The Trained Dental Nurse.

We are hearing of late a great deal of discussion as to the advisability, as well as the danger of having women trained as dental nurses. The writer is one who has advocated the establishment of dental clinics in the public schools, the same to be in charge of a dentist, assisted by trained dental nurses. As Dr. Barstow discusses the utilization of medical nurses in the public schools, what he has to say must interest us.

After reciting all that the medical profession has done to elevate the educational requirements, and thus increase the efficiency and consequent value of medical attention, he cites the entire lack of appreciation exhibited by the people, who are thus benefited. He points out how poorly the city pays for medical help in comparison with other professional service. He tells us that:

"In Manhattan an assistant district attorney receives \$7,500 a year. The Assistant Sanitary Superintendent of the Borough of Brooklyn receives but \$3,500. The medical inspectors of the Board of Health receive



but \$1,200 a year, from which must be deducted about \$120 for expenses, for which sum they have to give practically their entire time to the city. It is the city wage of a day laborer. Moreover, recently under the pretext that the Board of Estimate would not grant the necessary means, 35 inspectors at \$100 per month were dismissed, but over 138 nurses at \$75 per month were appointed."

To these nurses in the public schools is practically relegated services which Dr. Barstow contends should only be rendered by graduate physicians, not the least important of which is the examination of the children to discover the presence of contagious diseases.

In defense of this system, it has been pointed out that no case of contagious disease discovered by a nurse can be isolated, or excluded from school, until the diagnosis is verified by a re-inspection by the regular medical inspector. But the weak spot in this system is readily discovered and indicated by Dr. Barstow. He says that the danger does not lie in the incorrect diagnosis of a supposed contagious disease, but rather in the failure on the part of the nurse to diagnose a really existing case, and as these overlooked cases do not come under the examination of the medical inspector at all, they are not excluded from school attendance, and thus infect others. Thus the trained nurse is being used by the municipality, and illegally used according to Dr. Barstow's argument, to render services which are definitely defined in the statute as a part of medical practice. But the menace not only arises from this illegal utilization of the trained nurse, but is largely attributable to the overtraining of the nurse, as pointed out in the following extract from Dr. Barstow's paper:

"Another matter which we ourselves some years ago abandoned wholly to the laity was the matter of the qualification of nurses. What has been the result? Because of the utterly absurd educational requirements, which a lay board demands of the pupil nurse before she can enter a school as a probationer, we are to-day confronted with a shortage of nurses in all our large hospitals. So bad is the situation that at a recent committee meeting in New York, Dr. Goldwater, the Superintendent of Mt. Sinai, told the members of the committee that the trustees of Mt. Sinai had formally notified the department that in admitting nurses to its training school it would be obliged to disregard its requirements. Everyone here knows perfectly well the forcing process to which the pupil nurses have been subjected in training, so that as a result, on graduation, the training schools are presenting to the profession young women who had been half trained in many purely medical topics entirely out of their



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province, and too little trained as nurses; often, moreover, broken in health by the severe strain to which they had been subjected by totally needless hard study on subjects which did not concern them. The proper and natural administrators of any nursing system are physicians and not a lay board or a few ambitious nurses with a talent for intrigue and despotism."

This brings us logically back to the discussion of the trained dental nurse, especially as we have been warned by many writers (by Dr. Voelker in this issue of *ITEMS OF INTEREST*) that the training of women to act as dental nurses is but opening the door to a larger influx of illegal practitioners, or at least of women who will do work that should only be done by graduate dentists. Dr. Barstow's complaints against the medical nurses in the public schools, at first glance, seems to uphold this view. But upon a closer scrutiny we must note that in the last analysis everything will depend upon the extent of education that must be granted to or required of the dental nurse, as well as the statutory limitations that should be set upon her field of activity.

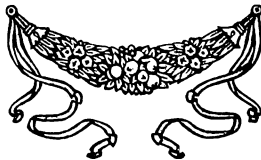
The writer cannot agree with the contention of Dr. Voelker and others that the mere cleaning of teeth must require a large acquaintance with oral pathological conditions. The work of the dental nurse should be limited to the actual cleansing of the teeth. In public school work where she would be attending the mouths of children, the vast majority of whom would have mixed dentures, containing teeth to be shed, it is inconceivable that the pathological conditions present would be other than local, and mainly of such an order that any cleaning whatever, however indifferently done, must work towards a betterment rather than a detriment. Besides, there is absolutely no doubt whatever that the dental nurse would by experience rapidly become expert in that very work which the dentist does so poorly, because of his indifference to, and disgust for it. In the private office, and indeed in the public clinic, if need be, the dental nurse should always be under the commands and guidance of the dentist, and it should be his duty to diagnose the pathological conditions, if any be present, and to so plan for and limit the services of his nurse, that she could, and would, only render service that would be of advantage to the patient. Certainly there is no reason why any contingency should arise wherein a dental nurse in a public school clinic could

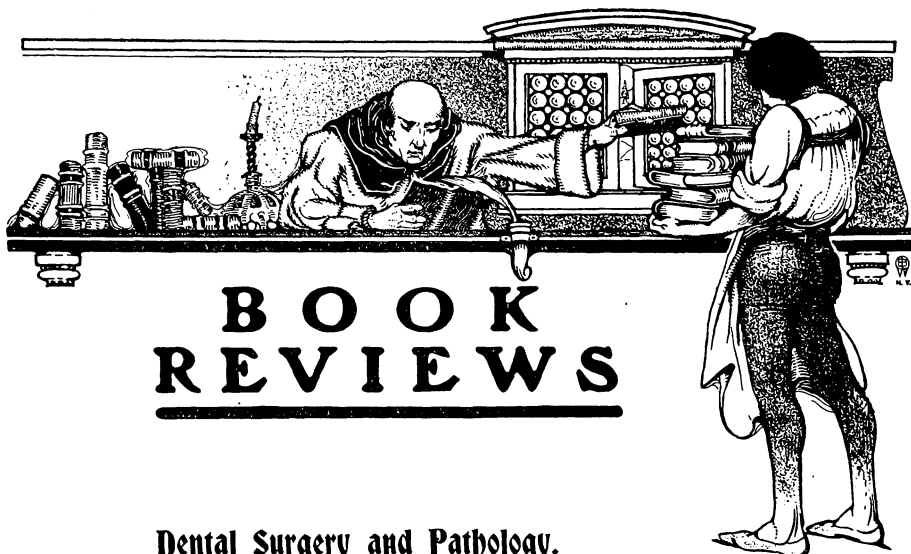


be a menace to the welfare of the school, in such manner as may occur with the medical nurse diagnosticating contagious diseases. The dental nurse would be looking only for cavities, abscesses, and oral filth. She could not possibly overlook more than is at present overlooked. Thus any change must be for the betterment of existing conditions.

But the educational limitations of the dental nurse should be just high enough to make her an intelligent help in a dental office, and yet not sufficient to give her the requisite knowledge to practice dentistry in even a small way. The temptation to practice dentistry should be removed from her path by making the punishment of the offense severe, and the punishment of the employer, who permits the nurse to practice illegally, should be double that of the nurse.

Indeed, an increase in the punishments at present administered to illegal practitioners might do very much to clarify the situation. So long as a man can be fined but \$50 upon conviction of a first offense, and so long as there is a possibility of his paying monthly hush money to unscrupulous persons supposed to be obtaining evidence against him, so long, of course, will the illegal practitioner flourish. But with a fine of \$500 or a \$1,000 for the first offense, and certain imprisonment for a second conviction, men would be less willing to take the risks involved.





BOOK REVIEWS

Dental Surgery and Pathology.

DENTAL SURGERY AND PATHOLOGY. By J. F. Colyer, L.R.C.P., M.R.C.S., L.D.S. Third edition of "Diseases and Injuries of the Teeth." London: Longmans, Green and Company, 1910.

This work embraces a broad field, or, rather, two broad fields, and it is obvious that any attempt at a thorough treatment of all that comes under its title in one book would be inconsistent. This the author has not undertaken to do, but he presents a volume of considerable merit, and its compactness will be appreciated by the many dentists who have neither the time nor disposition to fully cover the subjects included. The prominent feature of the work is an attempt to bring the study of dental pathology in line with the current knowledge of general pathology and to identify the causes underlying diseases of the teeth with those underlying disease in general.

Though the author offers few new theories in connection therewith, this scheme is adhered to throughout the book, and it is a system of treatment in accord with the modern trend of pathological study.

In the past there has been a tendency among dental pathologists to consider the diseases of the mouth, with undue emphasis on the importance of local causes and manifestations, and its intimate physiological connection with associated parts has somewhat been lost sight of.

Our past inconsistency in this direction has been due to no small extent to the lack of a complete medical education among practitioners of a distinct branch of medicine, and we read between the lines as essayists and authors bring this question before us in various forms, a forecast of conditions which will surely some day obtain, *i.e.*, the abolishment of D.D.S. and D.M.D. degrees, and the universal requirement of an M.D. for each practitioner of dentistry.

The chapter on "Extraction of Teeth" is a well written treatise on the subject, and its perusal would be helpful to students and most prac-



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tioners who perform the operation of extraction, an operation which is almost universally practiced in a decidedly unscientific manner, even by men who are generally considered skilful operators. A careful consideration of the anatomical construction of the parts, and particularly the probable resistant mechanical strength of the overlying osseous covering of the roots of the tooth or teeth to be extracted should precede the operation in each case. Certain fundamental rules are important, it is true, but variations of anatomical structure in the alveoli are so common that a most careful preliminary examination only can determine the direction of force properly applicable to each individual case. It is gratifying to note the author's appreciation of the importance of these points in confining himself to no set rules in tooth extraction.

The chapter on "Bacteriology of the Mouth" covers sixty-seven pages, and its author, Mr. Kenneth W. Goadby, deserves much credit for his able treatment of the subject in a small space. Beginning with a consideration of elementary principles, the article comprehensively, though briefly, describes the pathogenic bacteria more commonly found in the mouth, together with such organisms as are peculiar to the oral cavity. The chapter presents, perhaps, as complete an exposition of the subject as the average dental practitioner needs to digest. The rapidly growing appreciation of the importance of the oral cavity, not only as a point of entrance for much direct bacterial infection, but as, too often, furnishing the most favorable conditions for the incubation of dangerous organisms makes the subject one of great importance to the modern dentist, and he cannot afford to know less of it than is here presented.

The author's treatise in Chapter XVII on "Diseases of the Periodontal Membrane" has excited considerable favorable comment, and a perusal of this chapter convinces the reader that the criticism is deserved.

The work, as a whole, is very well arranged; the illustrations, with few exceptions, are excellent, and a typographical feature of value to the reader is the heavy typing of sub-titles and points of importance in the text.

E. N. K.

Notes on Dental Anatomy.

NOTES ON DENTAL ANATOMY. A Pocket Tome. By T. W. Widdowson. London: John Bale, Sons, and Danielsson, Ltd., 1911.

Although this is called a "Pocket Tome," it is scarcely less bulky than the volume of which it is intended to be an abridgment. This fact is partly due to the author's compliance with the request of readers of the first edition for a "revised second edition, containing blank pages for the insertion of their own notes and drawings." This demand is somewhat of an indication of the difficulties facing an author who attempts to present such a subject in a condensed form. No compendium can be ar-

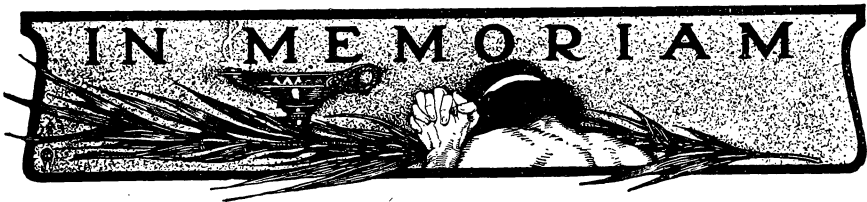
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ranged which will not omit some points that seem necessary to certain readers. However, it must be admitted that the work is very consistently arranged for the average student, and that it contains the matter of greatest importance to the casual student of dental anatomy.

Strange as it may seem, the average dentist is not well posted on this subject, and a surprisingly large proportion of dentists who have been in practice many years could not carve a typical tooth form, the histological structure and development of the dental organs being considered of importance only in passing college and State board examinations. Such an attitude, however, is not compatible with the rapidly increasing demands upon the dentist that he shall know his subject thoroughly, and a comprehensive knowledge of dental anatomy is more imperative to-day than ever before.

Mr. Widdowson's book may be recommended as containing the essential points on the subject for the average dentist, and as being a valuable aid to those who pursue a more extended study.

E. N. K.



Resolutions Upon the Death of Dr. Safford G. Perry.

WHEREAS, It has pleased Almighty God to take from our midst our beloved brother, Dr. Safford G. Perry, and

WHEREAS, The Second District Dental Society, in deep sorrow, desires to record the loss of one who, for many years was its faithful friend, be it

Resolved, That we, the members of the Second District Dental Society, do hereby express our sense of the great loss which we feel the dental profession—not only in this city, but in the world at large—has sustained. The heritage of his memory will be one which will remain ever bright in the history of the dental profession.

Resolved, That these resolutions be spread in full upon the minutes of the society, and copies be sent to the family of Dr. Perry and to the dental journals.

ELLISON HILLYER,
WILLIAM JARVIE,
F. T. VAN WOERT,
R. OTTOLENGUI.

Committee



SOCIETY ANNOUNCEMENTS

National Society Meetings.

NATIONAL DENTAL ASSOCIATION, Washington, D. C., September 10, 11, 12, 13, 1912. Secretary, Dr. Homer C. Brown, 185 E. State St., Columbus, O.

CANADIAN DENTAL SOCIETY AND ONTARIO DENTAL ASSOCIATION, union meeting, Hamilton, Ont., June 3, 4, 5, 6, 1912. Secretary, J. A. Cameron Hoggan, Federal Bldg., Hamilton, Canada.

AMERICAN SOCIETY OF ORTHODONTISTS, Chicago, Ill., July 1, 2 and 3, 1912. Secretary, Dr. F. C. Kemple, 576 Fifth Ave., New York.

State Society Meetings.

ALABAMA DENTAL ASSOCIATION, Tuscaloosa, Ala., May 14, 1912. Secretary, G. F. Petrey, Florala, Ala.

ARKANSAS STATE DENTAL ASSOCIATION, Little Rock, Ark. Secretary, Dr. I. M. Sternberg, Fort Smith, Ark.

ARIZONA DENTAL SOCIETY.

Secretary, Dr. H. H. Wilson, Phoenix, Ariz.

CALIFORNIA STATE DENTAL ASSOCIATION, San Francisco, Cal., May 13, 14, 15, 1912.

Secretary, Dr. E. E. Evans, Union Savings Bank Bldg., Oakland, Cal.

CONNECTICUT STATE DENTAL ASSOCIATION, Bridgeport, Conn., Apr. 16, 17, 1912.

Secretary, Dr. Arthur V. Prentis, New London, Conn.

GEORGIA STATE DENTAL SOCIETY, Americus, Ga., June 11, 12, 13, 1912.

Secretary, Dr. DeLos H. Hill, Prudential Bldg., Atlanta, Ga.

IDAHO STATE DENTAL SOCIETY, Idaho Falls, Ia., June, 1912.

Secretary, H. F. Kimball, Salmon, Ia.

ILLINOIS STATE DENTAL SOCIETY, Springfield, Ill., May 14-17, 1912.

Secretary, Dr. J. F. F. Waltz, Decatur, Ill.

INDIANA STATE DENTAL ASSOCIATION, Indianapolis, Ind., May 21, 22, 23, 1912.

Secretary, Dr. Otto U. King, Huntington, Ind.



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KENTUCKY STATE DENTAL ASSOCIATION, Louisville, Ky., May 27, 28, 29, 1912.

Secretary, W. M. Randall, Louisville, Ky.

MAINE DENTAL SOCIETY, Bar Harbor, Me., June 26, 27, 28, 1912.

Secretary, I. E. Pendleton, Lewiston, Me.

MASSACHUSETTS DENTAL SOCIETY, Boston, Mass., May 2, 3, 4, 1912.

Secretary, Chas. W. Rodgers, Dorchester, Mass.

MICHIGAN STATE DENTAL SOCIETY, Detroit, Mich., April 11, 12, 13, 1912.

Secretary, Dr. Marcus L. Ward, Ann Arbor, Mich.

MINNESOTA STATE DENTAL ASSOCIATION, St. Paul, Minn., June 14, 15, 1912.

Secretary, Benjamin Sandy, New Syndicate Bldg., Minneapolis, Minn.

MISSISSIPPI STATE DENTAL SOCIETY, Gulfport, Miss., June 4, 5, 6, 1912.

Secretary, L. B. PRICE, Corinth, Miss.

MISSOURI STATE DENTAL ASSOCIATION, Kansas City, Mo., April 16, 17, 1912.

Secretary, Dr. S. C. A. Rubey, Clinton, Mo.

MONTANA STATE DENTAL SOCIETY, Missoula, Mont., June 14, 15, 1912.

Secretary, Dr. T. T. Rider, Missoula, Mont.

NEBRASKA STATE DENTAL SOCIETY, Lincoln, Neb., May 21, 22, 23, 1912.

Secretary, Dr. J. H. Wallace, Omaha, Neb.

NEW HAMPSHIRE DENTAL SOCIETY, Weirs, N. H.

Secretary, F. F. Fisher, Manchester, N. H.

NEW YORK STATE DENTAL SOCIETY, Albany, N. Y., May 9, 10, 11, 1912.

Secretary, Dr. A. P. Burkhart, 52 Genesee St., Auburn, N. Y.

NORTH CAROLINA DENTAL SOCIETY, Raleigh, N. C., July 3, 4, 5, 6, 1912.

Secretary, J. W. Stanly, Wilmington, N. C.

NORTH DAKOTA DENTAL ASSOCIATION, Grand Forks, N. D., May 14, 15, 1912.

Secretary, Dr. E. N. Hegg, Hatton, N. D.

PENNSYLVANIA STATE DENTAL SOCIETY, Pittsburgh, Pa.

Secretary, Dr. Luther M. Weaver, 7103 Woodland Ave., Philadelphia, Pa.

SOUTH CAROLINA STATE DENTAL ASSOCIATION, Isle of Palms, Charles, S. C.

Secretary, Dr. W. B. Simmons, Piedmont, S. C.

SOUTH DAKOTA DENTAL SOCIETY, Sioux Falls, May 14, 15, 1912.

Secretary, J. D. Donahoe, Sioux Falls, S. Dak.

TENNESSEE STATE DENTAL ASSOCIATION, Memphis, Tenn., June 6, 7, 8, 1912.

Secretary, Dr. J. L. Manire, Memphis, Tenn.



TEXAS STATE DENTAL ASSOCIATION, Abilene, Texas, May 2, 3, 4, 1912.
Secretary, Dr. J. G. Fife, Dallas, Texas.

UTAH STATE DENTAL SOCIETY, Ogden, Utah, June, 1912.

Secretary, Dr. W. G. Dalrymple, 2421 Washington Ave., Ogden,
Utah.

VERMONT STATE DENTAL SOCIETY, Burlington, Vt., May 15, 16, 17, 1912.

Secretary, Dr. H. F. Hamilton, Newport, Vt.

VIRGINIA STATE DENTAL ASSOCIATION, Old Point Comfort, Va., July 9,
10, 11, 1912.

Secretary, Dr. W. H. Pearson, Hampton, Va.

WASHINGTON STATE DENTAL SOCIETY, Spokane, Wash., June, 1912.

Secretary, Dr. F. B. Lynott, 249 Peyton Blk., Spokane, Wash.

WEST VIRGINIA STATE DENTAL SOCIETY, Webster Springs, Va., Aug.
14, 1912.

Secretary, Dr. Frank L. Wright, Wheeling, W. Va.

WISCONSIN STATE DENTAL SOCIETY, Oshkosh, Wis., July 9, 10, 11, 1912.

Secretary, Dr. O. G. Krause, Wells Bldg., Milwaukee, Wis.

Southern California Dental Association.

The fifteenth annual meeting of the Southern California Dental Association will be held in Los Angeles, May 6, 7 and 8, 1912, at the Dental Department of the University of Southern California. Note that the date and place of meeting coincide with the Imperial Council of the Mystic Shrine. Clinics and papers will be given by dental surgeons of national reputation.

W. W. MUNGEN.

(Chairman Committee.)

The Odontological Society of Western Pennsylvania.

The Odontological Society of Western Pennsylvania beg to announce that it will hold its annual meeting on Tuesday and Wednesday, April 9 and 10, 1912, at the Monongahela House, Pittsburg, Pa.

Drs. Mathew S. Cryer, of the University of Pennsylvania; M. H. Fletcher, of Cincinnati, Ohio; T. H. Terry, of Cleveland, as well as many local men will present papers for the occasion.

The clinics will be of the usual high character.

Exhibitors desiring space for this meeting will kindly communicate with

JOS. N. KATZ, 1317 5th Ave., Pittsburg, Pa.

O. L. HERTIG,

WM. W. BOOTH,

Program Committee.



Washington University Dental School Alumni Association.

The annual clinic and reunion of graduates will be held under the auspices of the Alumni Association of Washington University Dental School, May 6 and 7, 1912, at the College Building, Twenty-ninth and Locust Streets, St. Louis, Mo. (The former dates of April 22d and 23d, first decided upon for the meeting, were changed to enable fellow alumnus, Dr. G. V. Black, of Chicago, to attend as guest of honor.)

This meeting promises to be unusually interesting, both in the way of papers and clinics, and all graduates should make a special effort to be present. All ethical dentists are invited to attend.

R. A. HARRIS,

E. A. WOELK,

F. E. MEYER,

Publicity Committee.

Florida State Board of Dental Examiners.

The annual meeting of the Florida State Board of Dental Examiners, for the examination of applicants for licenses to practice in this State, will be held in Jacksonville, Florida, May 25, 27, 28 and 29, 1912, beginning promptly at 9 o'clock on the morning of the 25th.

To be eligible to examination one must hold diploma from reputable dental school, and furnish evidence of good moral character.

Each applicant will be required to exhibit diploma and present a recent photograph of himself.

Practical work will consist of one gold and one amalgam filling in the mouth, one dowel crown and one upper or lower plate to be set up and occluded to a model of natural teeth.

No interchange of licenses with any State.

Tampa, Florida.

W. G. MASON, Secretary.

Rhode Island Board of Registration.

The Rhode Island Board of Registration in Dentistry will meet for the examination of candidates at the State-house, Providence, R. I., Tuesday, Wednesday and Thursday, June 25, 26, 27, 1912. Application blanks and particulars may be obtained from

H. L. GRANT, Secretary.

1025 Banigan Bldg., Providence, R. I.



Annual Meeting of the N. J. State Dental Society, July 17, 18 and 19, 1912.

The committee in charge announce with pleasure that contracts have been signed for the Forty-second Annual Convention of the New Jersey State Dental Society, to be held in the new and magnificent one million dollar, fireproof "Hotel Cape May," Cape May, N. J.

This hotel is situated on the extreme lower corner of the New Jersey Coast, swept by the Atlantic Ocean and Delaware Bay, with miles of board walk, a sloping, hard, firm beach that will accommodate six autos traveling abreast; fine bath houses and garages. The hotel has broad corridors, is thoroughly fireproof, one hundred and fifty baths with hot and cold sea water, and is unsurpassed for elegance, comfort and cuisine; its facilities for meeting room are perfect, fine light for clinics, and the space for dental and medical exhibitions is in abundance. A direct current electric plant is run by the hotel, and the city power is the alternating; every inducement and space will be given exhibitors. Lithographed floor plans can be obtained from the chairman of the Exhibit Committee, Dr. Moore Stevens, of 1503 Pacific Avenue, Atlantic City, to whom application for space can be made.

The Chairman of the Clinic Committee, Dr. M. R. Brinkman, of Hackensack, already has quite a number of prominent men booked, and will try to make room for all who desire to give chair or table clinics.

The Chairman of the Essay Committee, Dr. Wentworth Holmes, 472 Broad Street, Newark, N. J., has secured from five well-known men papers of great interest, and expects others.

The hotel rates will be American plan—\$3.50 per day each for two persons in a room, \$4.00 per day, one person in a room. The majority of rooms have twin beds. Other hotel rates in May.

Write at once and reserve your rooms; do not delay. The Pennsylvania and Reading Railroads have finely equipped cars and rapid service.

The one million five hundred thousand land-locked harbor has at present a depth of forty feet. Negotiations are under way to bring the public by the all-water route from New York, Boston, Philadelphia, Baltimore, Washington, and other cities.

CHARLES A. MEEKER, D.D.S.

Secretary.



Union Meeting—Southern, Atlantic and Mercer County Societies.

The Southern, Atlantic and Mercer County Societies of the State of New Jersey will unite in holding a meeting at Atlantic City, June 19, 20, 21, 1912, at Young's Ocean Pier.

Dr. Joseph Duffield, Camden, Chairman of the Essay Committee; Dr. Wm. H. Gelston, Camden, Chairman of the Clinic Committee, and Dr. M. P. Shoemaker, Atlantic City, Chairman of the Exhibit Committee, with Dr. A. L. Wescott, of Atlantic City, Chairman of the Executive Committee, report that progress has so far advanced that they are enabled to announce an unqualified success of this meeting. All ethical dentists are invited to attend and are assured that the meeting will be one of profit and enjoyment.

Camden, N. J.

WALTER W. CRATE,
Chairman Press Committee.

Alumni Clinic of University of Iowa.

The Alumni Clinic Committee of the University of Iowa has abandoned the Annual Alumni Clinic for 1912. This has been done with the idea of increasing the interest and attendance of the Golden Anniversary of the Iowa State Dental Society. This, together with the postponement of the Midwinter Clinic of the G. V. Black Club, of St. Paul, Minn., should double the attendance at the State Society Meeting at Des Moines, May 7th, 8th, 9th and 10th.

H. A. ELMQUIST.

North Carolina State Board of Dental Examiners.

The next regular meeting of the North Carolina State Board of Dental Examiners will be held in Raleigh, N. C., July 1, 1912.

For further necessary information address

DR. F. L. HUNT, Secretary.

Asheville, N. C.

North Carolina Dental Society.

The thirty-eighth annual meeting of the North Carolina Dental Society will be held at Raleigh, N. C., in Hall of the House of Representatives in the Capital, July 3, 4, 5 and 6, 1912.

Instructive papers have been secured, and the Clinic Committee will unquestionably present a fine list of clinics.

A cordial invitation is extended to all ethical dentists.

J. W. STANLY, Secretary.

Wilmington, N. C.



Arkansas Board of Dental Examiners.

The next meeting of the State Board of Dental Examiners will be held in Little Rock, Ark., June 17th and 18th. All applicants are required to pass an examination to obtain a certificate. Examination fee, \$15.

E. H. JOHNSON, D.D.S., Secretary and Treasurer.

Citizens Bank Bldg., Pine Bluff, Ark.

Southern Minnesota Dental Society.

The twenty-seventh annual meeting of the Southern Minnesota Dental Society will be held at Mankato, Minnesota, April 8, 9 and 10, 1912. Programs will be issued in due time.

C. A. HINTZ, Secretary.

New Ulm, Minn.

Maryland State Board of Dental Examiners.

The Maryland State Board of Dental Examiners will meet for examination of candidates for certificates, May 30 and 31, 1912, at the Dental Department of the Baltimore Medical College, at 9 A. M.

Candidates must pass a written examination in Anatomy and Physiology, Chemistry and Bacteriology, Oral Surgery, Operative and Prosthetic Dentistry and Pathology, Therapeutics and Materia Medica.

The practical requirements consist of the insertion of one gold and one amalgam filling in the mouth, and the submission of a metal plate or bridge of not less than four crowns, two of which shall be of porcelain; the parts being assembled and invested in advance, and soldered in the presence of the Board.

Applications accompanied by the fee of \$10 must be filed with the Secretary prior to May 30th.

For application blanks or further information, apply to

F. F. DREW, Secretary.

701 N. Howard Street.

Michigan State Board of Dental Examiners.

The next regular meeting of the Michigan State Board of Dental Examiners will be held at the Dental College, Ann Arbor, commencing Monday, June 17th, at 8 A. M., and continuing through the 22d.

For application blanks and full particulars, address

F. E. SHARP, Secretary.

Port Huron, Mich.



West Virginia State Board of Dental Examiners.

The West Virginia State Board of Dental Examiners will hold their regular meeting in Wheeling, W. Va., June 12, 13, 14, 1912.

For information write to

J. FLEETWOOD BUTTS, Secretary.

Charleston, W. Va.

Susquehanna Dental Association of Pennsylvania.

The forty-ninth annual meeting of the Susquehanna Dental Association of Pennsylvania will be held at Irem Temple, Wilkes-Barre, Pa., May 21, 22, 23, 1912.

For information, address the undersigned.

EDMOND J. DONNEGAN, Recording-Secretary.

Scranton, Pa.

New Jersey State Board of Registration and Examination in Dentistry.

The State Board of Registration and Examination in Dentistry will hold their semi-annual meeting in the Assembly Chamber of the State House at Trenton, N. J., June 24, 25, 26, 1912.

Practical work on the 24th.

Application must be in the hands one week prior to the examination.

CHARLES A. MEEKER, D.D.S., Secretary.

29 Fulton St., Newark, N. J.

Wisconsin State Board of Dental Examiners.

The Wisconsin State Board of Dental Examiners will convene in Milwaukee, at Marquette University, on Monday, June 24, 1912, at 9 A. M., for examination of applicants to practice in Wisconsin.

High School diploma, applications and \$25 fee must be filed with the Secretary fifteen days prior to above date.

Dental diploma to be presented in advance of examination.

F. A. Tate, President.

W. T. HARDY, Secretary.

422 Jefferson St., Milwaukee, Wis.